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TRAVELS IN MEXICO

AND

LIFE AMONG THE MEXICANS

BY

FREDERICK A. OBER

AUTHOR OF

"YOUNG FOLKS' HISTORY OF MEXICO" "CAMPS IN THE CARIBBEES" ETC.

I.
YUCATAN

II.
CENTRAL AND SOUTHERN MEXICO

III.
THE BORDER STATES

IV.
MEXICAN RESOURCES

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1887
West

WITH 190 ILLUSTRATIONS

MAINLY FROM THE AUTHOR'S PHOTOGRAPHS AND SKETCHES

REVISED EDITION

BOSTON
ESTES AND LAURIAT

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PREFACE.

"IT is difficult," wrote an English author of celebrity, "for a person, who is desirous to lay before the public an impartial view of the present state of Mexico, to determine exactly at what point to commence his undertaking." This difficulty has stared the author in the face ever since his first trip to Mexico; but it has seemed to him that there has been an increasing popular demand for a work which, while conducting the reader by pleasant paths through the most interesting portions of the Republic, should convey at the same time information of lasting value.

Hence, during the nine months devoted to travel and exploration, and the two years and more given to a study of the history and customs of the Mexican people, he has ever kept in mind the great popular desire, now so decidedly expressed, for a book on Mexico which should relate, in plain and simple language, the fascinating story of its history as it is interwoven with scenes visited, and should describe the wonderful development now taking place through the agency of the millions of American capital invested in railway construction and the exploitation of mines. At the time of the author's visit to Yucatan and Central and Southern Mexico, he devoted more attention to the natural features and historic surroundings of his journey than to the material wealth of the country; but the great progressive movement, initiated by the opening of the railroads, could not fail to awaken in him an interest in the present and future of Mexico, as well as in its past. Returning to the United States, his narrative of travel was nearly ready for the press early in 1883, but perceiving, as he thought, a greater need of the public for full and authoritative statements regarding the resources of Mexico, and descriptions of the Border region, written from the standpoint of personal observation, he laid aside his manuscript for a while and essayed another journey southward. By this time the great railroads, which were hardly beyond their inception at the period of his first visit, had entered Mexico at several points, and he travelled along the entire Mexican boundary line, from the Gulf of Mexico to the Gulf of California, accomplishing a

journey by rail of over ten thousand miles, some distance of which was through a region not often traversed and but little known. Two years later, availing himself of the opportunities afforded by the completion of the great through lines to the city of Mexico, he made a third journey into the Mexican Republic, embracing all the great cities of the table-land, and everything of interest not previously seen. Thus, his Mexican journeys aggregate over twenty-five thousand miles, by sea and land, and extend over a period of four years. He has had the satisfaction, during this extended period of observation, of seeing Mexico develop on the lines of progress and prosperity. Through the sagacity of its political leaders, though by methods which may seem to outside observers questionable, the country has been preserved in tranquillity, and internal commerce developed as never before. The author must not be understood as indorsing any political or commercial enterprise whatever looking towards Mexico, the success of which is, to say the least, problematical; but he intended merely to point out a field for *ultimate emprise* of exceeding great value to the United States. Hence the book was written as from the stand-point of a decade beyond the present, and needs no new Preface to this latest edition.

Having said in the previous Preface what he thought necessary as a brief introductory, he will not burden his readers with any additional matter. He would add, incorporating the substance of his first prefatory note, that it would be impossible for him to enumerate, in the short space at his disposal, the authors and friends, at home and in Mexico, to whom he has been under obligation. Except to call attention to the fact that he has examined nearly every prominent work extant on Mexico, the author feels that any mention of the various books on the subject would be a superfluous labor. It is hoped that the wide scope of this book, including as it does nearly every topic of interest, people, customs, historical references, antiquities, and natural productions, and its carefully prepared and exhaustive index, will make it valuable, to every person interested — even though remotely — in the progress of Mexico. To this end, the numerous engravings and maps have been prepared; and by means of the latter one may trace the extension of our vast system of railways towards its ultimate destination, the continent of South America.

The wide-spread interest in Mexico is manifested by the thousands of tourists now visiting that country every year, and by the constantly

increasing demand for the author's lectures on the subject, which have been delivered in nearly every section of the United States, and are in their seventh season of successful operation.

It remains only to add, that this edition of "Travels in Mexico" has been brought up to date in all matters of importance, and is made of greater value than previous editions by the addition of fifty pages of statistical material, collated, and in the main translated, by the author from that great work, the *Estadistica de la Republica Mexicana.*

The soil, climate, and productions of every section are shown, with its distinctive features, — the great coffee, sugar, and cotton districts, with a full list of all the precious dye and cabinet woods, delicious fruits, and medicinal plants, which make tropical Mexico so valuable a neighbor to the United States.

Under "Mines and Mining" are given the locations of the great deposits of precious metals; abstracts from the mining laws of Mexico, for the guidance of those desiring to locate mines; and full information on the exact localities of the gold, silver, copper, iron, lead, quicksilver, and coal deposits, and the valuable Mexican minerals.

The facts are given without exaggeration, and at the same time without depreciation; and the reader may draw his own deductions as to Mexico's future from this accurate presentation of her productions in the past.

What the writer stated in the Preface to the first edition, this he now reiterates. There being no longer any "Great West" to which trade and travel may flow, it is believed that our country of the future lies in the South, — that Greater South, — in Mexico, Central and South America.

BEVERLY, *Massachusetts*, May 7, 1887.

TO

STEPHEN SALISBURY, Esq.,

Of Worcester, Massachusetts,

WHOSE ACQUAINTANCE, BEGUN THROUGH A COMMON INTEREST IN AMERICAN ARCHÆOLOGY, HAS RIPENED INTO A FRIENDSHIP,

TO WHICH THE AUTHOR

HEREBY GRATEFULLY ACKNOWLEDGES HIS INDEBTEDNESS.

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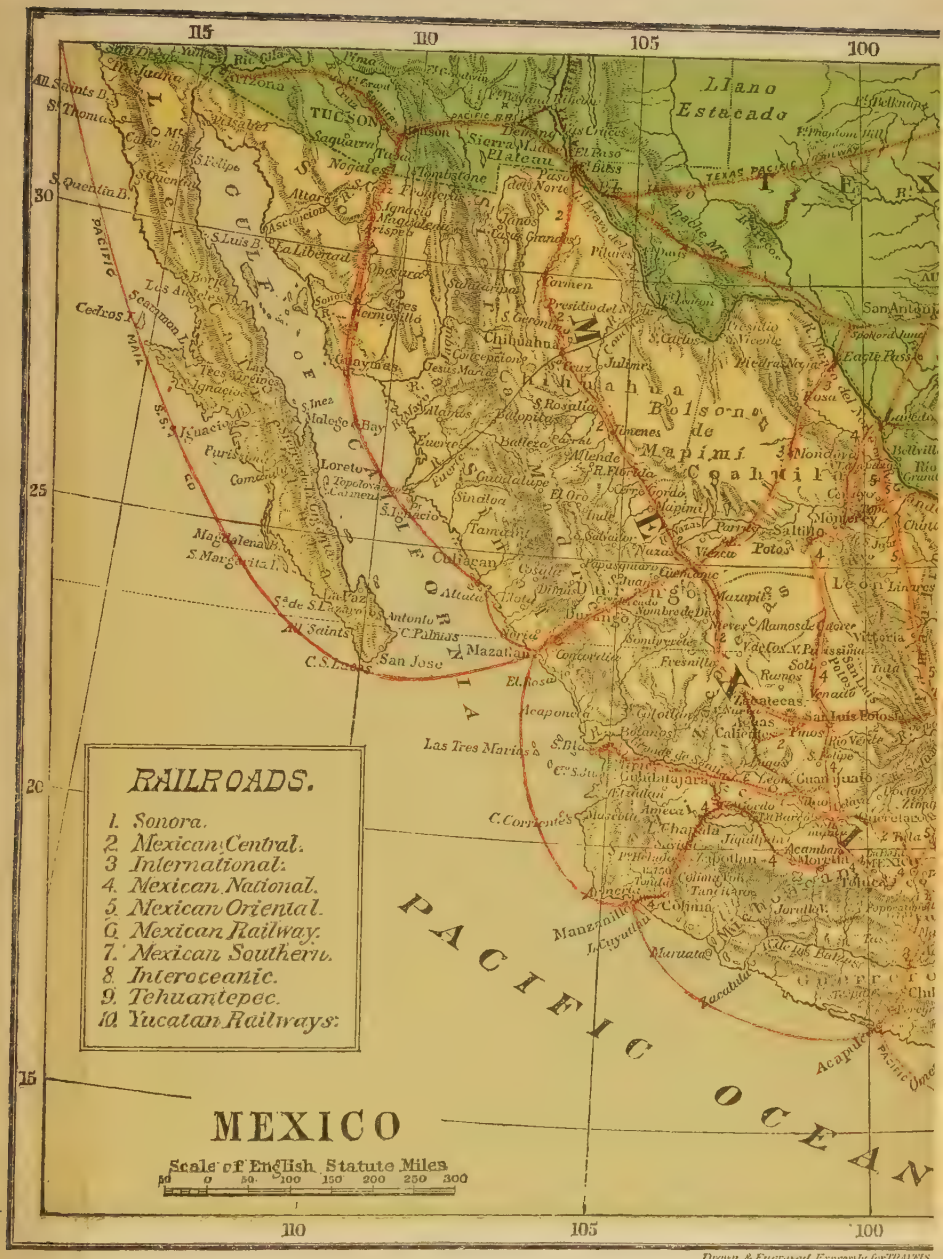

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Galveston
Sabine
Marsh I.
I. Dernere
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C. St. Blas
Victoria
Matagorda
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Alvarado
Sacrificios I.
Catoche
Chetumal B.
BELIZE
Bay of Honduras
Bay Is.
Tehuantepec
Bay of Tehuantepec
GUATEMALA
HONDURAS
COMAYAGUA
Omoa
Truxillo
Porto Cortez
Gulf of Dulce
Gulf of Fonseca
Lewis Eng Co. Boston.

BOOK I.

YUCATAN.

the beach and sailed towards us. As they neared the steamer, we could note that their crews wore cotton garments, and were clean; some wore no shirts, and some no trousers, but all were clean. This is said to be the notable difference between Yucatecans and Aztecs: these are clean, those are dirty.

THE CUSTOM-HOUSE.

The wind was fair, we were soon on shore, and the customs officials were examining our luggage. Then we were conducted to the hotel, a thatched structure with stone walls, and a sleeping apartment over the stable. This dormitory contained four hammocks and a wash-basin; and enough spiders and scorpions were supposed to lurk in the thatch overhead to make it interesting.

Besides the hotel and the custom-house, there were a few score of tiled houses and thatched huts, several stores, a market,

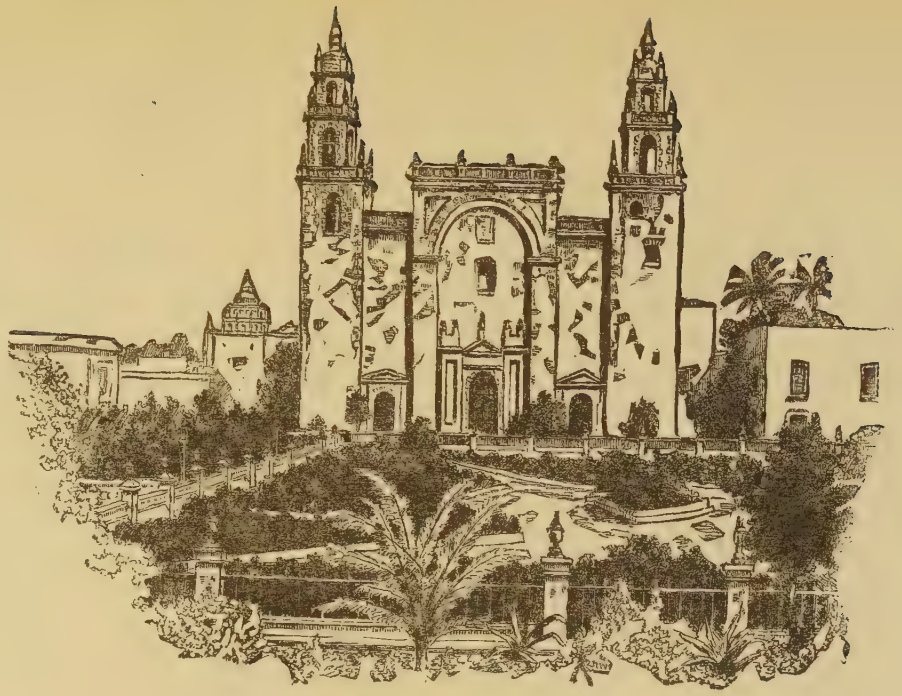
and a church. As the shipping port for the vast quantities of Sisal hemp raised in Yucatan, this place is of great importance; and as it has a reputation for health, though very hot, it is much resorted to in summer by people from the interior. It has only one wharf, or jetty, which is provided with wooden cranes, and is over five hundred feet long. There is no harbor here, and all vessels are obliged to anchor far from shore, the steamers at a distance of three miles. This open roadstead is exposed to all the winds that blow, and in the season of "northers" is positively unsafe. The old port of Sisal, some distance farther down the coast, has been abandoned; and as it has no railroad into the interior, it will never more be the place of export for the hemp that bears its name, and which constitutes the wealth of the country.

A railroad connects Progreso with Merida, a distance of twenty-five miles; and though all the iron, equipments, and rolling-stock for that road were brought from England and the United States and landed at the port, they were carted to the interior terminus and the road commenced at that end. At first sight, this will seem one of the foolish undertakings of that unprogressive country; but let us see. The contractor wished to secure at once the benefit of freights, and, as all the hemp came from the interior, it was advisable, apparently, to begin at the end nearest the freight; hence everything was hauled to Merida, and the road begun there. As soon as the first few miles were laid, this wary contractor commenced to haul hemp over his rails by mule power, so far as they went. Again, he got a concession, or grant of money from the government, for every mile of road when finished. The portion nearest Merida was the easiest to build, and all the laborers were there also. Thus, in many ways, did this sagacious man make his enterprise pay him from the very start, until to-day it is considered one of the most profitable railroads in the world. According to the terms of his contract with the government, the owner of the railroad was compelled to carry passengers from port to capital for a certain reasonable sum, when it should be completed. As a consequence, he built to within a mile or two of the coast, and

then charged at a very unreasonable rate; now, however, it is finished. There are two trains daily each way, besides the freight cars, forenoon and afternoon.

Back of the dunes of the coast there is a broad lagoon, hundreds of miles in length, varying in depth and breadth with the season. Here many of our Northern summer birds spend the winter: duck and teal, snowy-plumaged herons, ibis and egrets, snipe and sandpipers, curlews, snake-birds, and cormorants. Beyond the lagoon, the bed of coral rock, composing the entire territory of Yucatan, rises above the level of the water. The vegetation is not exuberant, and the soil is thin and dry.

Soon after leaving the lagoon, the road passes through the *henequen* plantations, with miles and miles of Sisal hemp on either side the track, the immense fields neatly walled, to prevent the roaming cattle from getting in and eating the plant. The dwellings of the planters are surrounded with coco palms, and are approached by long lanes terminating in arched stone gateways. Excepting the hemp plantations, there is little to interest one, as the prevailing vegetation is low and scrubby. But the people alone are sufficiently strange to Northern eyes, for they are wholly peculiar to this country; they are Indians, descendants of the original inhabitants found here by Cortés and Cordova. We meet them in little groups that grow larger as we near the city suburbs, until (this being Sunday, and consequently a holiday) they pass along the road in processions of hundreds. The men and women are all neatly clad in garments of white, white as snow, the former wearing shirts with ruffled bosoms and plaited backs, the women their traditional dress of three centuries ago, — a skirt from the waist to the ankles, and an outside *uipil*, or overskirt, from the shoulders to the knees. It is evident that the engine has not ceased to be a wonder with them, as many have a timorous expression on their faces, and every time the whistle blows, or steam escapes, start back in affright. It seemed that intense curiosity only had overcome their fear of this monster. These great crowds of Indians, gathered here to inspect the steam marvel of the white man, recall to mind those passages in the narratives of the explorers of this



CATHEDRAL AND PLAZA.

country, when the ancestors of these same people collected by thousands, eventually to oppose the march of the invaders, but prompted solely at first by no stronger motive than that of curiosity.

The train, drawn by an American engine and composed mainly of cars manufactured in the States, passed through a narrow, crowded street, and rested finally at the station. As in Northern cities, there were cabmen here, but they were perfectly indifferent as to whether one hired them or not. We finally captured one, succeeded in making him understand that we wished to engage him, and were driven through broad streets, between stone-walled houses, to the hotel.

The buildings display a style of architecture peculiar to the country, combining with the picturesqueness of Moorish and Spanish something that recalls the ruins of the Indian civilization upon which they are built. The larger structures, such as the hospital, Governor's palace, and city hall, have balconies projecting from their upper windows, while many of them are supported upon arches, the long colonnades of which have an imposing appearance. Most prominent among the peculiar features are the grated windows of all the houses. There is no glass in use here, but every window is enclosed by a grating of half-inch iron bars, which projects from the wall about a foot. Through these prison-suggestive windows, as we rode along in the gloom of early evening, I could see most attractive groups of lovely faces. Though there were here and there some with pale complexion, many that we saw that evening seemed of Indian descent. All had black hair, and great black, lustrous eyes, and most of them looked quite bewitching, — as they should, for they were *señoritas*, young ladies and misses.

The Hotel Mexico, where we stopped, faced the *Plaza Mayor*, or great central square, about which are arranged the principal buildings: the cathedral, with lofty towers and walls two centuries old, fronts the *Casa Municipal*, or city hall, erected sixty years ago; the hotel is one of a long block supported upon effective arches of masonry; opposite it, on the south side of the Plaza, is the oldest house in the city, built in 1549. A great

mound once covered the space now occupied by the *Plaza Mayor*, and on and around it, in 1540, a terrible battle was fought, — forty thousand Indians against two hundred Spaniards, says the old historian. The mound was razed, and from its materials and the many pyramids of stone erected by the Indians in ages past, the city of Merida was built. The last of these mounds, an immense artificial elevation containing an aboriginal arch, has just been dug away for the building-stone composing it.

There are fifteen plazas in the city, and each one has facing it a church; like the cathedral, erected in 1667, on the great plaza, of ancient date and most attractive and quaint architecture. Though these churches are now impoverished, and some of them in decay, the number of the faithful is sufficient to maintain a suggestion of former grandeur. Since the expulsion of the Jesuits, some twenty years ago, religious processions have been forbidden, the various streets and plazas have changed names, and many large colleges and monasteries have changed owners. One of the pleasantest of the squares is the *Parque Hidalgo*, formerly known as the *Plaza de Jesus*. The largest of all had a fountain, which is soon to be replaced by a fine statue of marble, in its centre, smooth walks, an abundance of flowers, and is shaded by trees. The streets of the city cross each other at right angles; they were formerly designated by figures of birds and beasts, as the bulk of the Indian population could not read. On each corner was painted the figure representing the street, or an image was perched on the wall. Few of these objects remain, but one may yet find the "Street of the Elephant," of the "Flamingo," and the "Street of the Two Faces." The elephant is large as an ox, with a body big as a barrel, and curved trunk and tusks. Nearly all the streets of the city terminate in ancient gateways, high arching above the pavement, with niches and spaces in them, containing some saint, the Virgin, or a cross.

Though under the federal government of Mexico, the State of Yucatan has its separate governor and legislature. The Governor is generally an efficient man, and interested in the welfare and

CASA MUNICIPAL.

development of the country. He has a salary of $4,000, with an appropriation of $16,000 for himself and staff, in which this is included. The Lieutenant-Governor gets $1,500, the Vice-Governor and Council, $5,000, total. Other salaries are: —

Judicial body (twelve members)	$16,500
Clerks, etc.	13,500
Remaining officials, about	35,000

The appropriations for the year 1881 were: —

For public schools, about	$50,000
Public improvements, railroads, roads, etc.	43,000
Police	14,000
National Guard	25,000

Every man, from twenty-one years to fifty, is subject to military duty, and may at any time be drafted. He then gets the extraordinary pay of *six cents per day*, and finds himself in food.

The total budget for 1881 was about $300,000, of which the officials absorbed such a portion as seemed to them best for the public good — and themselves. It is a noteworthy fact, that, out of the various sums appropriated, but $300 was set aside for the Museum: this in a country richer in archæological remains than any other known portion of America. But a fact still worthier of comment is, that they should have established a museum at all. The *Museo Yucateco* is not large nor well conducted, and its few specimens are poorly arranged; but it contains many a prize that our archæologists would like to secure.

There are several newspapers here, the *Eco* and the *Revista* being the commercial papers. The former is published three times a week, the latter daily, and both are very well edited. There are also a semi-weekly official organ, and two religious papers, one Catholic and one independent. There is a bank in Merida, and drafts can also be obtained on New York and Europe from the hemp exporters, who are the heaviest business men of the city. Premium on drafts about fifteen per cent, at sixty days' sight. The rate of interest here is from

one to two per cent a month. Travellers coming here should bring American gold, as it is always at a high premium and pays no duty.

For a city so isolated, and in a climate so totally antagonistic to the development of literary talent, Merida contains many writers of more than local distinction. Her list embraces authors of valuable historical works, writers of fiction, poetry, and the drama. One work, a Dictionary of the Maya, the aboriginal language of the peninsula, is especially valuable; and a recent drama written here has been produced in Havana and Madrid. It may seem strange that men of education and reputation should prefer to live in this remote section of the world; but there seems to be a charm about this old city that draws them to it. There are here men of great wealth, men who have crossed and recrossed the Atlantic, were educated in London and Paris, and have passed years on the Continent, who yet love the city beyond anything else in the world.

Though lying just midway between Havana and Vera Cruz in point of longitude, — cities smitten with yellow-fever every summer, — Merida rarely suffers from this scourge. But few cases annually occur, it not often becomes epidemic, and it is said that at no time has the *vomito* existed in Merida and in its seaport, Progreso, at the same time. The city is generally in a very healthy condition, though its only supply of water is derived from the clouds and from subterranean caverns.

The climate is hot as the hottest, but the furnace heat of midday is tempered by cool breezes; night and day the wind is blowing, rendering life more than endurable here. The temperature ranges from about seventy-five to ninety-eight degrees, in the shade. Though one would suppose the hottest months would be August and September, yet it is said that March and April have that distinction, when, added to the heat generated by the sun, is that from burning corn-fields, which are fired all over the country.

The houses are freer from vermin than is usual in tropical countries, owing perhaps to their manner of construction. There are two thick walls with a filling of stone, sometimes from four

to six feet deep. The rooms are lofty and spacious, though generally barren of ornament, and washed or painted white. The great beams supporting the stone roof are visible overhead, and are painted a different color. The floors are cemented, the courts tiled, and there is no woodwork except in the doors and windows. Rooms of this vault-like character are gloomy and depressing to a stranger, but they at least offer no harbor of refuge

ANCIENT HOUSE.

for spiders, centipedes, or scorpions, and one may retire to his hammock with a sense of security not always felt within the tropics. The furniture of these houses is simple and plain, and, except in those of the very rich, there is little beyond what necessity requires. No earthquakes or hurricanes disturb the equanimity of the Yucatecos, their heaviest blows seldom exceeding the limits of *temporales*, or strong winds. Many of the

houses here were built two hundred years ago, and their beams and rafters are as hard as iron. The most ancient of these old buildings is one erected in the year 1549, by the Adelantado, Don Francisco Montejo, the conqueror of Yucatan. Its façade is a grotesque combination of Moorish-Indian architecture, representing knights in armor trampling upon prostrate Indians.

The lamented archæologist, J. L. Stephens, whose writings on the ruins of Central America and Yucatan have secured him permanent fame, resided here forty years ago, in company with his artist, Mr. Catherwood, and Dr. Cabot, of Boston. The house he then occupied, and rented at four dollars a month, is now leased for sixty dollars. A corresponding rise in real estate has been steady, and now it is next to impossible to find a house to let or for sale. Business is active, prices ranging about the same as in Havana. To summarize a comprehensive glance over the State, the following figures are appended: Capital and largest city, Merida; port of entry, Progreso;

Number of other cities	7
Towns	13
Villages	143
Abandoned settlements	15
Haciendas	333
Ruined cities	62

Many of the "cities" are beginning to decay; many of the "towns" are composed entirely of thatched huts, and many of the *haciendas* comprise enormous estates, with mile on mile of territory; so that Yucatan, though dotted with indications of civilization on the map, is yet mainly a wilderness, with perhaps less territory developed than when Cordova landed here, or when Montejo conquered its aboriginal inhabitants.

II.

YUCATECOS.

A BIT of history might be quoted here, to the better understanding of the country, the people, and their institutions; and without further parley we will turn to the description given by Ferdinand Columbus of the first Indians from Yucatan that the eye of Spaniard ever looked on. It was on the fourth and last voyage of the Great Admiral, in 1502, when, driven by currents out of his southerly course from San Domingo, he sighted a group of islands off Honduras, and captured a canoe, formed of the trunk of a single tree, eight feet wide and as long as a galley. "In the middle was an awning of palm leaves, not unlike those of the Venetian gondolas, under which were the women, children, and all the goods. The canoe was under the direction of twenty-five Indians. They had cotton coverlets and tunics without sleeves, curiously worked and dyed of various colors [exactly the same as are worn in Yucatan at the present day], covering for the loins of similar material, large mantles, in which the Indian women wrapped themselves, like the Moorish women of Grenada; long swords with channels on each side the blade, edged with sharp flints that cut the body as well as steel; hatchets of copper for cutting wood, bells of the same material, and crucibles in which to melt it. For provisions they had such roots and grains as the natives of Hispaniola (Haiti) eat, a sort of wine made of maize and great quantities of almonds (*cacao*)[1] of the kind used by the people of New Spain for money. The Spaniards were also struck with the personal modesty of these Indians, in which they greatly excelled the natives of the islands."

[1] The seeds of the Cacao — *Theobroma cacao* — are still used as small change in barter amongst the poorer classes of Southern Mexico.

Columbus sailed to the south; how much better would it have been for him had he sailed west! "Within a day or two," says Irving, "he would have arrived at Yucatan; the discovery of Mexico and the other opulent countries of New Spain would have necessarily followed; the Southern Ocean would have been disclosed to him, and a succession of splendid discoveries would have shed fresh glory on his declining age, instead of its sinking amidst gloom, neglect, and disappointment."

Four years later, in 1506, Juan Diaz de Solis, afterwards discoverer of the Rio de la Plata, and Vicente Yanez Pinzon, who commanded a ship in the first voyage of Columbus, and was so unfairly treated by him, entered the Gulf of Honduras and saw the east coast of Yucatan. They departed, however, without any attempt at exploration, lured by vague reports of gold in the south, and to Cordova and his companions must be awarded the glory of bringing Yucatan to the notice of the world, and of opening the way for its acquisition by the Spaniards.

This venture of Hernandez de Cordova, in 1517, though it yielded him and his comrades scarcely any reward save the consciousness of having found a new country, (all of his company being wounded and many of them killed in encounters with the natives,) yet first made known the existence of a land whose inhabitants were decently clothed, and built houses of stone and lime.

Following in the wake of that stout old soldier and chronicler, Bernal Diaz, who was with Cordova, we shall need no other guide through the historic portion of Mexico, for he attended its christening and was in at the death.[1] Undaunted by his wounds of the previous year, he sailed with Juan de Grijalva, in 1518, in which memorable voyage he coasted the entire northern and western shores of Yucatan, and reached under this

[1] "Bernal Diaz del Castillo is the best that ever writ of the Conquest of Mexico, as having been an Eye Witness to all the principal Actions there; and has an air of Sincerity; writing in a plain Style, and sparing none where he could see any Fault.

"Cortés' Letters cannot be contradicted, he having been the chief Agent in the Conquest of Mexico, but he being more taken up with Acting than Writing, could not give them all their Perfection." — Herrera, Stevens's translation, 1740.

commander the site of the present city of Vera Cruz. In 1519 this intrepid soul again set sail for Yucatan, in the service of Hernando Cortés, whom he followed through all his wanderings; and in this manner unconsciously collected the material for the best and most truthful history of the conquest of Mexico that has been given to the world.

The richer country of Mexico attracted all the captains and soldiers thither, and Yucatan remained comparatively unnoticed for a decade of years after its discovery. In the year 1527 the gallant Don Francisco de Montejo obtained a grant from the king of Spain for its conquest and colonization. Landing first at the island of Cozumel, off the east coast of Yucatan, he attempted to march into the interior from the shore of the peninsula opposite, but everywhere met with determined opposition from the Indians. It was not until the year 1537 that, Don Francisco having been driven from the territory, his son again effected a landing near Campeche. From that date to the great battle at T'ho (Merida), in 1540, the Spaniards were constantly fighting; but they finally triumphed — only to find that this country, which they had so desperately battled for and which its native inhabitants had so bravely defended, contained not a single mine of gold or silver, nor anything to reward them for their conquest.

Since this period, the history of Yucatan has been mainly uneventful to the world at large. The people, the first shedders of European blood in New Spain, and apparently ferocious and sanguinary, readily yielded to the Spaniards, quickly embraced the religion of the usurpers, and settled down to the cultivation of the arts of peace. In the year 1761 occurred a great uprising of the *raza indigena*, or aborigines; and again in 1847 a numerous body revolted and fled to the southeastern portion of the peninsula, which they still occupy. For thirty years and more there have been Indians with their war-paint on, rebels against the authority of the government. Though living in the eastern portion of the country, they now and then make raids in the direction of Merida, causing great excitement; they have depopulated a large extent of country, and caused towns and

even cities to be abandoned. A notable example is the city of Valladolid, once a large and flourishing centre of trade, noted for its manufactures of cotton, but now nearly abandoned and in ruins.

In numbers, these Indians are not strong, the largest estimates being no higher than seven thousand; in fact, there are not probably more than two thousand. They are, however, fierce and revengeful, — a different people, seemingly, from the timorous Indians of Merida, whose ancestors probably built the magnificent temples that now lie in ruins throughout Yucatan. They are more like the Caribs, the people that once possessed the southern West Indies, the Spanish Main, and the Mesquita Coast. Though few in number, they have succeeded in completely terrorizing the entire country, and are as difficult to find as were the Seminoles of Florida forty years ago. The wildest stories circulate about them, and the people of the city tremble at their very name. If a stranger penetrate to their country, they seize him at once and hack him in pieces with their *machetes* without listening to a word of explanation; or they reserve him for torture, tying him by a long line to a stake by a ring through the nose.

Though so atrociously cruel, yet who can blame them, when he remembers the torments inflicted upon the ancestors of these people by the early Spaniards? To them, every man with a pale face is a Spaniard, whose abhorred presence is to be rid of by death. They hold guarded intercourse with the English in Belize, but allow no white man to penetrate to their city. This city, whose inhabitants must yet retain much of their aboriginal simplicity, much of ancient cunning in the arts of their progenitors, — what traveller would not like to visit and describe it?

Annually, their territory is increasing in extent, and that of the whites and agricultural Indians becoming restricted; *rancho* and *hacienda*, farm and plantation, village and town, — one by one they are destroyed, and the land they covered added to that of the dreaded *sublevados*, or insurgents. It was rumored in 1881 that all the Indians of Yucatan, Central America, and Honduras

were to unite in one general uprising, and it was well known that the Indians of Chan Santa Cruz had sent invitations for a grand council of all the tribes; but the latest advices report that they have buried the hatchet. Every year they send a threatening message to the capital, promising to make its streets run with blood, and to massacre the last inhabitant; and every year the people quake and turn pale, but do nothing to prevent their advance. That advance, if it is ever made, will be along the ridge of the hills that lie south of Merida, commencing at Uxmal and running into the interior, towards the capital of these insurgents, Chan Santa Cruz. Yucatan is incompletely garrisoned by a few Mexican and Federal troops, who once in a while march out into the country in search of the Indians, who retire to their fastnesses; and the troops then triumphantly return, with a great flourish of trumpets — but without any Indians.

From fifty to fifty-five thousand people reside in this city of Merida, the greater portion of whom are Indians, or people directly descended from them, who show in their swarthy skins their native blood. From a union of the two races, Spanish and Indian, result the *Mestizos*, — feminine, *Mestizas*, — or mixed people, who are the handsomest in all Mexico. They are a gentle, docile race, loving pleasure, not always avoiding labor, cleanly in habit, and perfectly honest. Though three centuries have passed away since this territory was subjugated, the Indians and Mestizos yet retain many of their ancient customs and dances, and especially the style of dress of the period antecedent to the conquest.

As a servant, the Indian is slothful, but humble, never impudent, always reliable; and a dirty one is indeed a phenomenon. In hiring laborers, whether to work on a plantation or as house servants, you must always advance them money, retaining a percentage from their wages as they come due, to reimburse you. No matter how long a servant may stay with you, he or she will surely leave in your debt; even the washerwoman is no exception. When they desire to go, they do so, previously informing you of their intention. This is generally when they have got a little money ahead; and they lie idle so long as it

lasts. The person next employing them is supposed to assume the debts of the Indian. Imprisonment for debt has been abolished; you cannot force a laborer to work out a debt, and at death all obligation of estate or family ceases. Wages are not high; a good cook gets but two dollars per month, and her assistants even less. A day-laborer gets two *reales* (twenty-five cents) a day, a good mason from sixty-two cents to one dollar and a half, and his attendants fifty cents; carpenters and blacksmiths, about the same.

TORTILLA-SELLER.

The economy of the cuisine is something wonderful in its simplicity, even in the houses of the rich. Starting upon first principles, the Indian and Mestiza women who rule the kitchen prepare the farinaceous food in the same manner as they did a thousand years ago. For hundreds of years, the Indian women of the South have ground the corn for their daily bread, as at the present day, between two stones. They know no other way. One of them, being told that the women of the North had no such employment, exclaimed, in surprise, "Why, what do they find to do with themselves?" Night and day, these poor women labor at the mill. The smooth stone at which they work is called a *metáte*, from the Aztec *metatl*, and has long been in common use among the Indians all over our continent, specimens having been found in New Jersey, in Mexico, Yucatan, and the West Indies. Upon this metate the corn, pre-

viously softened in alkaline water, is ground to a fine paste, then patted into thin cakes and baked over a quick fire on a thin iron plate or flat stone. The accompanying engraving represents one of the tortilla-makers; the girl herself is a fair type of the Mestiza of the serving class of Yucatan.

These cakes of Indian corn, called *tortillas*, constitute, with *frijoles* (pronounced *free-ho'-les*), the chief food of the poorer classes of all Mexico. Frijoles, it may be well to explain, are *beans*, — nothing more, nothing less; and these good people eat them twice every day, fourteen times a week, and seven or eight hundred times a year. They are always accompanied with *chile*, a kind of red pepper that delights the Mexican stomach, but which is so very hot that few strangers dare approach within a foot of it.

It was to the credit of the United States, and my good fortune, that we had as Consul in Yucatan, at the time of my arrival, a gentleman every way fitted for the position. Consul Aymé, though of French extraction, was a true American. He had twice circled the globe, was with our transit of Venus expedition as mineralogist, in 1874, and possessed rare accomplishments as an educated gentleman and devotee of science. Strangers at that time were rare in Merida, and the good Consul sought me out at the Hotel Mexico, and, with Spanish politeness and more than Spanish sincerity, offered me his house during the period of my stay. To him I am indebted for forty happy days in Yucatan, and for the best disposition of the time at my command. The building occupied by him as the consulate was on the south side of the Plaza, near the antique structure previously mentioned as having been erected by the first Adelantado of Yucatan. From it the various excursions projected for my benefit by my hospitable friend were carried out, embracing not only the interesting portions of the city, but remote points in the country, noted for their ruins or as being the resorts of rare birds.

An interesting place to visit, always, was the market, held in a large court enclosed on every side by high buildings. The entrance was nearly always obstructed by women with fruit to sell,

whose presence was tolerable from the fact that they sold it extremely cheap. For a *medio* (six cents) one could buy a dozen oranges, a bunch of bananas, or a large lot of mangoes. The court was filled with little shelters made by planting a pole in the ground, and making a framework on it like the ribs of an umbrella, and covering it with matting. Beneath each one sat a woman or girl, with her articles for sale spread about and before her, — a little fruit, cabbage, lettuce, or cooked meat. Upon a square of cloth, spread on the pavement, would be half a dozen eggs, right out where everybody was passing, or a few peppers, a bunch of flowers, or a pint of beans. Some of these market-women wore elegantly embroidered uipils; some were pretty, all were modest, and all were peaceable. During the time I was in that country I did not see one quarrelsome or disorderly person, hardly heard a baby cry, or any one raise his voice to another above a tone of polite conversation; the place was crowded, but there was no jostling or confusion.

In a circular space in the *Calle de Hidalgo* is a market devoted entirely to the sale of hats and hammocks, the handiwork of Indians, who squat there all day in the blazing sun. Near this place is the corn-market, a long line of arcades beneath which the merchants sit with corn and beans emptied in heaps on the pavement. There are sold here, also, pottery and fancy wares. Under the castle walls, the mule teams that have come in the night before from the interior are grouped, resting, or waiting for return loads. Above all, the ruined cupolas of the monastery peer over the castle walls that surround it, and the cries and the drumming of the guard occasionally ring out from within. This monastery was built on the ruins of an artificial mound, was of vast proportions, and covered that mysterious arch mentioned by Stephens, which has so long been a puzzle and a stumbling-block to archæologists.

The air of morning is so sweet, so cool, that a walk into the suburbs is almost imperative. The first noises are just preceding daybreak, when the soldiers change guard at the "palace"; then the bells of the cathedral strike up, and shortly after appear dawn and sunrise. Passing through one of the quaint and

A CITY GATE.

ancient gates, you enter at once pleasant and winding lanes, grass-grown and with protruding limestone rocks, with trees thick on either side, and half-wild gardens; but in all this tropic shrubbery there are few birds save the mocking-bird, blackbird, and cardinal.

The few people you meet are unobtrusive, and you may wander on for hours among the peculiar oblong huts, — deeply thatched with grass, so picturesque and so vermin-suggestive, — with women in *négligé* garbs cooking in the yards, and children contentedly playing about them, without hearing a harsh or discordant voice. Here indeed the softness of the climate makes itself felt. Returning at perhaps nine or ten o'clock, you will experience great discomfort from the glare of the sun on the yellow, dust-covered streets. A wise ordinance of the city prohibits the painting of a house white, for this very reason, glare. If such a law were in force in other cities within the region of heat, as in Bermuda or Barbados, for instance, how beneficial it would prove to the people! In those islands everything is white, except the plants, — houses, streets, and sand-hills; and, as if the white stone they build of were not glaring enough, they whitewash the roofs, and wear blue spectacles to mitigate the intensity of the reflected rays of the sun.

Rarely does a visitor to Merida, or indeed to any portion of Mexico, obtain an inside view of life there; but, fortunately for me, while there, society was turned inside out by the occurrence of the carnival. It was near the middle of that memorable sixteenth century that witnessed the conquests of Cuba, of Mexico, and of Peru, that the Spanish invaders founded, upon the ruins of the Indian city of T'ho, this now ancient metropolis, the capital city of Yucatan. Probably no one of the old cities of Mexico has so faithfully preserved its old-time characteristics as this. Though Roman Catholic in their faith, many of its citizens yet cling to their ancient religious rites, practising them, however, only in secret. But there have been also deeply engrafted upon the minds of the people many customs of times more modern than that of the conquest. A city of fifty thousand inhabitants cannot exist in a Catholic country — even one in which

the power of the Church has been so curtailed as in Mexico — without observing the feast-days and the carnival. This latter celebration, thanks to the readily accepted invitation of the United States Consul, I had an excellent opportunity for witnessing.

Four days were devoted to the carnival, and five nights to the balls which form a part of it. Sunday, the 27th of February, was properly the day of opening, though the ball of Saturday night was a brilliant affair. The first indications of the carnival on Sunday morning were from a band of Indians, who personated the wild men of the country in songs and dances, and exhibited for the amusement of themselves and spectators the costumes of their ancestors. These were of the lower classes, who had not attended the ball of the previous night. Soon the streets were alive with people, after the morning mass, and the fun commenced. Though fun-loving and innocent in their amusements, these people have not the fertility of invention necessary to secure artistic effect, or to more than broadly burlesque the customs of their own country. Their best groups were the Indians, who excelled in dancing, and the *estudiantes*, or bands of Spanish students, who went about in costume, singing songs of their own composition.

Let one day in my description suffice as a specimen of all the rest, and let that day be Sunday because everybody was fresh, excited, and animated. After the Indians had passed, and a great crowd of the ordinary "tag-rag and bobtail" of such processions, came the *estudiantes*, a picturesque band, happy, careless, tuneful. Down the street they came, around the corner of the Plaza, in sight of the great cathedral, and halted opposite the consulate. At a signal from their leader, they burst forth into wild, sweet melody, from guitars thrummed by practised hands, flutes, violins, and violoncellos. They handed us some printed songs, and we saw that they were the work of some of Merida's sons, — for they have poets here of no mean rank. Their music was lively and pleasing, and they were so well drilled as to render all their pieces most effectively; the impression left as they passed on was as though one had listened to an opera,

without the fatigue of going to hear it. There were two bands of students, one wearing dark cloaks and *sombreros*, and the other the Mexican colors, flags draped as cloaks, and hats with cockades. They were true students, and patterned after those famous ones of Salamanca, wearing in their hats the traditional spoon, knife and fork, or corkscrew, and with the devil-may-care air of contented and light-hearted youth.

They pass on, and the road is for a moment empty; another shout from the gamins, a hubbub of drum and cornet, and another body of curiously attired men comes along. These are the military, a burlesque on the Indian soldiers that assume to defend this peaceful country. They are dressed in uniform, — Mexican uniform: white pants and shirt, the latter outside and overshadowing the former, — and some of them drag along a wooden cannon.

Another crowd rushes around the corner, bearing a different flag. These are Cubans, and a fight is at once in progress, a sham fight, in which no blood is shed, but many prisoners are taken. The Cubans are routed, of course, and pursued down the street with great pretended slaughter. The Yucatecos return with several prisoners, and at once institute a mock trial, the prisoners, three in number, being chained with strings of spools to the cannon. The captain asks the corporal of the guard where he found these men, and is told that he found them in the country; that they had no arms, so his men surrounded and took them prisoners.

"Did you not find any other prisoners?"

"*Si, Señor Capitan*, a jug of *aguardiente*."

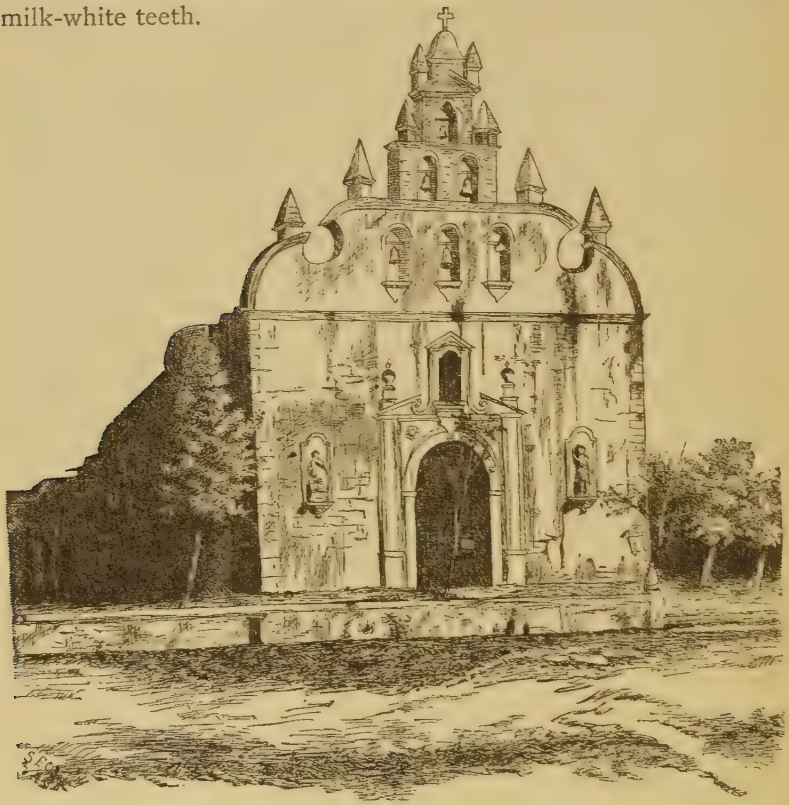
"And where is it?"

"The prisoners drank it."

"Then take them out to be shot."

A detachment marched off with the prisoners, and the ragged brigade went off in search of more glory. In the afternoon, at five, was the great *paseo*, when everybody who could hire a carriage joined in the procession that drove through the principal streets. Not all the carriages were elegant, being, most of them, of the country; but on this account they were all the more

interesting, especially the *calezas*, — two-wheeled vehicles, built somewhat after the pattern of the Cuban *volante*. These calezas, each drawn by a single horse or mule, on whose back was perched the driver, contained some of the prettiest girls in Merida, dark-skinned as a rule, but with beautiful black hair and eyes, and milk-white teeth.



THE CHURCH OF SANTIAGO.

The group at the consulate could not resist joining in the procession, and a caleza was obtained at once. The prescribed route, from which no one ever varied, was around the Plaza and through the two principal streets. At the corner of one is the famous nunnery, built many years ago, now partially in ruins, since the banishment of the fair inmates. It is said that there exists a

secret tunnel leading under the city from the monastery (now likewise in ruins) to this abode of peace and purity. The starting-place for the grand *paseo* is at the square of Santiago, where is a most holy church, in front of which is a great ceiba tree, the centre of the bull-ring. It is one of the oldest in the city, its façade is adorned with numerous statues, and its cupola with many bells. In the opinion of the early builders of churches, the sanctuary that could crowd the most bells into its turrets, and raise the loudest clangor, possessed the strongest odor of sanctity.

Every time you pass acquaintances, it is considered proper to salute them. The ladies do this sort of thing very gracefully, but at the same time in such a way that you are puzzled to know whether they are merely giving you recognition or beckoning to you. They raise the hand till the tips of the fingers are on a level with their eyes, then they flutter them backwards and forwards, seeming to invite approach rather than to give an ordinary salutation; and their bright, beaming eyes add to the illusion.

The most interesting feature of the day was a group of Indians representing the costumes and dances of the aborigines. The people found in possession of Yucatan, who fought the early Spaniards and were finally subjugated by them, who probably built the cities that have been nothing but ruins for centuries, were the Mayas (pronounced Mý-yahs), and were sun-worshippers. It has been stated that no traditions regarding them exist among the present inhabitants of Yucatan. The dance that I witnessed at the carnival completely refuted this, as will now appear. The first thing these Indians did was to spread a banner in the centre of the room, on which was painted a figure of the sun, with two people kneeling in adoration of that luminary. The chief of this band of about twenty Indians then suspended from his neck a bright-colored representation of the sun stamped on tin. At the foot of the banner-staff crouched an old man, with a drum made by stretching the skin of a calf or goat over one end of a hollow log. At the side of the drum hung a shell of a land tortoise, and the old man beat the drum and rattled the shell in

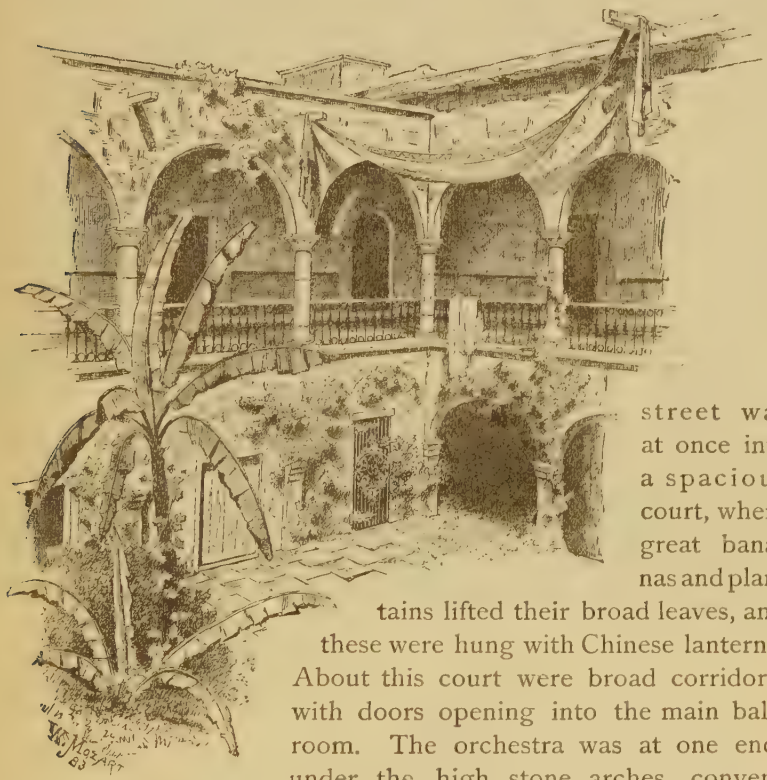
unison. The object with which he beat the drum attracted my attention, and I examined it and found it to be the gilded horn of a deer. This hollow drum, with turtle-shell and deer's antler, fully confirms the statement that the music is aboriginal; for one of the old chroniclers, in an account of a terrible battle with the Indians of Campeche, — writing not long after the event, — says that they made a most horrible and deafening noise with these instruments: "They had flutes and large sea-shells for trumpets, and turtle-shells, which they struck with deers' horns."

After the banner was spread, the band ran around it in a crouching attitude; in one hand each held a rattle, and in the other a fan of turkey feathers, with a handle formed by the foot and claw of the bird. Each one wore a wire mask, with a handkerchief over his head, and a mantle embroidered with figures of animals and hung with small sea-shells. The costume was that of the Mestiza women, — a skirt from the waist to the ankles, with their peculiar dress over it, — just such a one as was worn by their ancestors centuries ago, and by the ancient Egyptians. On their feet they wore sandals, tied on with hempen rope. The chief was distinguished by a high crown of peacock feathers. He chanted something in the Maya language, and they replied; and then the music struck up a weird strain and they danced furiously, assuming ludicrous postures, yet all having seeming significance, shaking their rattles and fans to right and left, and all keeping perfect time. After nearly half an hour of dancing they stopped, at a signal from the chief, and gathered about the banner, gazing upon the image of the sun with looks of adoration.

This was the dance of sorrow, or supplication; after it came the dance of joy, an Indian fandango; then the flag was furled, and the floor occupied by two couples. After this dance was finished they all adjourned to the court-yard, where the Consul had provided a large jug of *aguardiente*. Of this they imbibed through small tubes of the size of a pipe-stem, which all carried. These people kept this thing up four days and nights, dancing and drinking all day, yet not one seemed weary and not one was drunk. At dark they took their leave, politely thanking us

for our attention, and we soon heard them dancing and drumming in another house near us.

Those moving in the higher circles of society took their enjoyment at night in dancing, and there were two grand balls in progress at once. The entrance into the club-room from the



A COURT.

street was at once into a spacious court, where great bananas and plantains lifted their broad leaves, and these were hung with Chinese lanterns. About this court were broad corridors, with doors opening into the main ball-room. The orchestra was at one end, under the high stone arches, conveniently near to the bar. As the ladies entered, they were escorted to seats in the main saloon, a long and high, though narrow room, where they sat ranged on both sides. They wore every variety of dress, from silk to calico, and, while some of the costumes were gorgeous, the majority were neat, fresh, and tasteful. The faces of the young ladies were sweet, pensive, and very pretty; the blooming complexions, though perhaps short-lived, soft and mellow-tinted.

The prevailing characteristics, glancing down the line of beauties, are large, black, liquid eyes, bright brunette skins, and abundant black hair. Notwithstanding a prevailing belief to the contrary, I think the girls of tropical climates fully as modest in their appearance as their Northern sisters. Their training in seclusion has not counted for nothing. Whatever their inmost desires may be, outwardly they are as pure as the firmest Quaker. They look at the young men demurely, but if gazed at they drop their eyes, yet not without showing the delight

YUCATECAN CALEZA. CUBAN VOLANTE.

a young man's presence causes them. Yet their nature is not intense, but warm and indolent.

Everything here is for the enjoyment of the men, — the parks, the promenades, the drives, the cafés, the social life. Poor woman is looked upon merely as the Turk regards his mistress, — as an object to be kept jealously out of sight of the stranger, as a toy for the moment's enjoyment. That she rebels and repines at her harsh treatment is evident to the observer. But heartily do they enjoy the exquisite pleasures of the carnival. Here they can meet their lovers, and most zealously do they improve the fleeting hours in the ball-room. It is said

that all the engagements are made at this season, and the poor lovers have little chance for meeting again, before another carnival, except in the watchful presence of the lady's mother. They yield themselves to the sweet abandon of the hour, and float through the dances; but they quake inwardly at the thought of the scoldings they will get from the lynx-eyed duennas, who — now old and ugly — enviously begrudge their daughters these little pleasures.

No people in the world are pleasanter, or possessed of more delightful manners, than the Yucatecos, and they might be taken as models to be studied with advantage. The Yucatan dance is slow and measured, simply a walk-around, and so no one gets warm and perspiring. Dance follows dance, until twelve o'clock, when the ladies begin to lessen in number, and by one the hall is empty.

Five nights they kept the ball in motion, improving every precious hour of the carnival; and at its ending there were, doubtless, many souls made happy with the thought that they twain should some time be one; while a great many more were disappointed, and were relegated to another year's imprisonment.

To the great regret of the people, the carnival finally ended, the noise of revelry ceased, all the fair *señoritas* were safely housed in their respective prisons, the lights of the ball-room extinguished; and we walked home to our hammocks beneath the glimmer of the serenest of stars, and through an atmosphere delicious in its coolness.

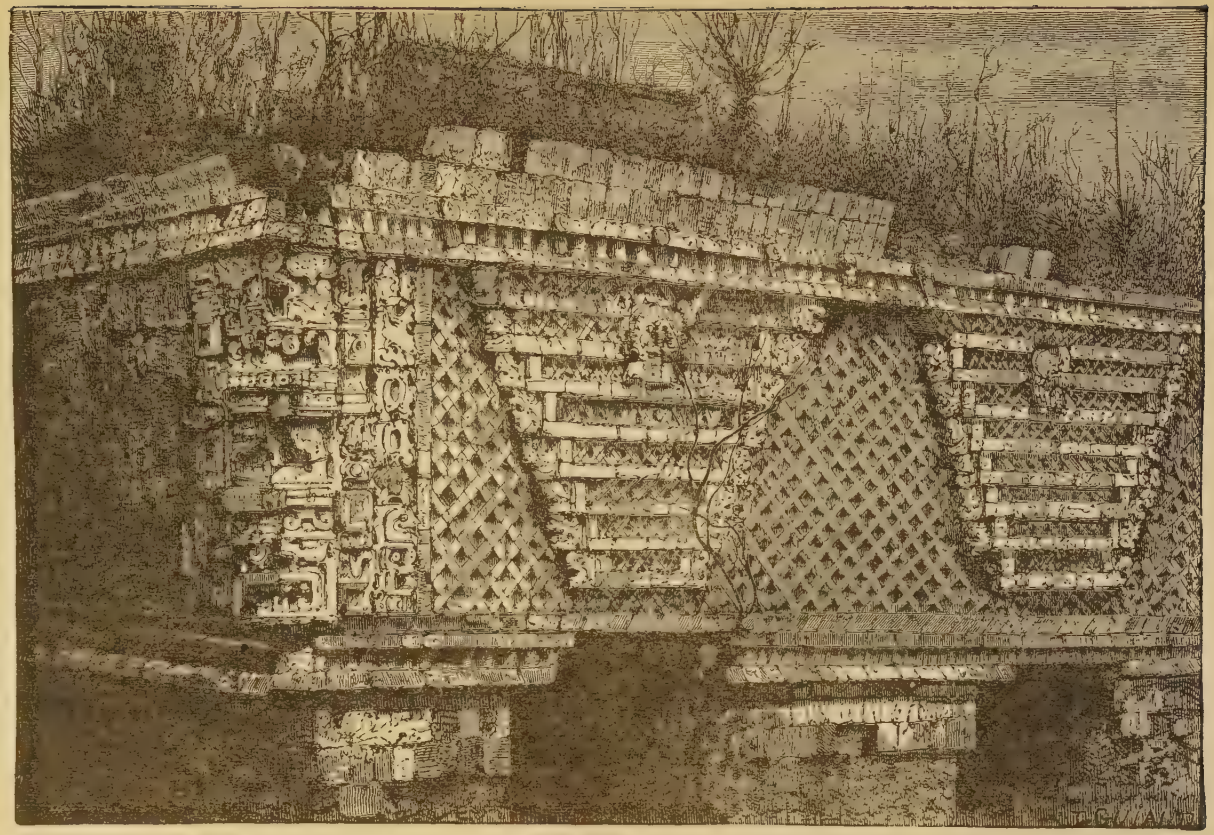
III.

UXMAL, THE RUINED CITY.

BURIED in the wildernesses of Yucatan, ruined cities await in silence the coming of the traveller, — cities that had their birth so far back in the twilight of time that not a tradition even remains to tell who built them. Within a radius of one hundred miles from Merida are such magnificent ruins as Mayapan, Aké, Chichen-Itza, Kabah, and Labná, and scores of others. But none is more interesting than UXMAL, which is also very accessible, being within forty miles of the capital, in a straight line, and sixty miles by road. At four o'clock in the morning after the last ball of the carnival, the Consul woke me. He had just returned from the scene of revelry and yet wore his official uniform; but in half an hour he had exchanged this for a plainer garb, had packed a small valise with articles for a trip, and was ready for an excursion to Uxmal. The morning was very cold, the stars were still shining brightly, while the Great Bear was crouched away west of the north star, hanging above it with his tail in the air.

The *volan* came at five, the driver tied valises and gun-cases to the axle, and we crawled in and lay down on the mattress. Early as it was, there was some life astir, — men wrapped in their *sarapes*, and a cart with women from the country. We cleared the city limits before daybreak, passing through the gate of San Cristobal, meeting many teams, loaded with wood and hemp, with people perched on top under little shelter, all shivering with the cold.

Travelling in Yucatan is attended with some difficulties, owing to the heat of day and the bad state of the roads. To avoid the heat, all long journeys are performed by night. To



PORTION OF FAÇADE OF CASA DEL GOBERNADOR.

mitigate the roughness of the road, a peculiar style of vehicle is employed, called a *volan*. This is a Yucatecan conveyance *sui generis*, and not found anywhere else; it might be called a modified volante, — in common use in Cuba, — only, instead of sitting up in it, you lie down. It has two large wheels, and the body of the concern is placed directly above the axle, suspended upon high, very elastic springs. The shafts are very long, and a framework projects behind, upon which trunks may be secured, and a bottom of interlaced ropes supports a mattress. It has a canvas top, and is always drawn by three mules, — one in the shafts and one on either side, — harnessed in by such a combination of leather and rope that no stranger could, by any possibility, disentangle them. These mules are generally very small, but make up for lack of size by the length of their ears, which they carry along their backs.

The sun came up; the western sky was reddened and the fine leaves of the mimosas were gilded by its first rays. The many birds that live in the scrub then came out: blackbirds, "chickbulls" or *Crotophaga*, jays, orioles, and at one place we passed the fresh skeleton of an ox covered with vultures, the species common in the Southern United States and the West Indies, — *Cathartes aura* and *atratus*. At nine o'clock, having accomplished two fifths of the journey, we came in sight of the hacienda of Uayalké. We entered the great gate, and our driver stopped under a large tree in front of the house, and unhitched the mules, as though all belonged to us. This is one of the delights of travel in Yucatan: that any *hacendado*, or owner of a hacienda, makes you welcome to his hospitality; there being no hotels in the country, this has become a necessity, to which they gracefully submit. We ascended the steps and were greeted by the *mayor-domo*, who showed us all over the house and ordered breakfast at once, — a charming repast, of tortillas, frijoles, eggs, oranges, and chocolate, with a jar of water in common.

This hacienda is a very large one, having thousands of acres planted in hemp, with great engines busily at work crushing the leaves and rasping the pulp. Great stone corridors sur-

round the house, and a broad *alameda*, or shaded walk, extends out to the gardens, passing above the stables. Here a score or more of women were drawing water from two deep wells, reaching a *cenote* by an endless chain of bark buckets running over a large wheel. They were going and coming in endless procession, with large *cantaros*, or jars, upon their hips. This water serves to irrigate the garden, full of orange trees, coffee, and coco palms. Without it, the plain about would be a waste; with it, it blossomed like an oasis, as it was. The lime-rock crops up everywhere, and about the orange trees brick walls have been built to retain the water. Everywhere are high stone and arched gateways, and away on every side stretch broad fields of hemp. Everybody seemed cheerful, busy, and modest. After we were made welcome the head servants came up and saluted each of us, "*Buenos dias, señor!*" and about twenty savage-looking fellows, who came in with huge bales of grass strapped to their heads, and with long *machetes* hanging at their sides, left their loads and bade us good morning, bowing to us gracefully. There was a clock-tower here, and a chapel with figures in stone over the door; a fountain stood in the centre of the yard, and orange trees in bloom, full of doves and warblers, shaded the corridor. Outside the hacienda walls lay scattered curious elliptical huts, with stone walls and thatched roofs, the homes of the laborers.

An hour after leaving this hacienda we reached that of Mucuyché, famous for its *cenote*, or water-cave. There are no rivers in Yucatan that flow above ground, and the people are wholly dependent upon the clouds for their supply of water, and upon the rivers that run beneath the surface. The whole province is one vast table of coral rock, beneath which flow large streams, and even rivers. These break out at intervals into caves and caverns, formed by earthquake and the pressure of the water, though sometimes the supply is due to the infiltration of surface water into natural grottos in the coral rock. The Indians, centuries ago, marked the courses of these subterranean streams by heaps of stones, and their cities were always built near or about the water-caves, as is now shown by

their ruins. These caves, where the rivers appear to the light of day, are called *cenotes*. There are many in Yucatan, and in Merida are several, utilized as bathing-places, — most refreshing resorts in the heat of day. The cenote at Mucuyché is a cavern, perhaps forty feet deep, broken down at one side, forming an arch of limestone with every shape of stalagmite and stalactite, the roof full of holes, in which were the nests of hundreds of swallows and hornets. A flight of stone steps leads from the delightful garden above, and some avocado pears and coco palms growing at the bottom thrust their crowns above the general level of the ground. The water is clear and very deep at the east end of the cave, with many fish in it, — "cenote fish," — which are said to be blind, like those in the Mammoth Cave. Roots of trees hang pendent in clusters, behind which lizards and iguanas dart along the ledges; swallows circle in dense masses about the arch, forming a complete ring, and making a deafening whirring noise with their wings. The way to the cave was past the great front corridor above the cattle-yard, — all cattle-yards of Yucatan are in front of, and immediately adjoining, the dwellings of the proprietors, — past the well, where pretty mestizas were drawing water, and through a garden full of orange and lemon trees.

Our delays made our driver impatient, and he plied the lash upon those unhappy mules more furiously, if possible, than before, urging them with his tongue, likewise, by shouting, "*Mula! Mula!*" and clucking so strongly with his lips that I thought some of the braces had cracked, and looked out. The cart was banged over rocks and into holes, the mules going at a full trot, and on level road at a gallop, and our half-reclining position was anything but pleasant.

The vegetation hitherto had been the same, low trees and bushes, but the mimosas grew taller as we went on. At one point on the road we stopped to examine an Indian mound, and found broken sculptures and blocks of limestone scattered about through the bushes, indicating that we were in the field of ruins to which appertained the great dead city. From its summit we looked over a wide extent of plain, flat as a table, with only

now and then a large tree and with a single line of hills, blue in the distance, ten miles beyond which was our destination.

In descending, we found ourselves covered with *garrapatas*, or ticks, with which the entire territory of Yucatan abounds. These insects are very small, but also very annoying, for no one can venture into a wood without being covered with them, and they cause a dreadful itching, festering in the wounds. The only protection from them that I am aware of is petroleum, with which the entire body must be rubbed, and the clothes must be changed when coming from the fields. Emerging from the miles of woods, we saw a hemp-field, and soon the white gate of a hacienda, — a beautiful place, — which we reached at four in the afternoon. We intended to go on, but the mayor-domo pressed us to stay, and gave us a splendid supper of turtle-soup and steak, eggs, frijoles, and tortillas, with claret and honey. A garden, every way the equal of that we had visited in the morning, surrounded the house, and we walked in its delightful shades in the evening. The beehives attracted my attention, they were so primitive and so complete, for a tropical country, being merely round hollow logs, about two feet long, plastered up at each end with mud, and piled up in long rows. They are emptied every six weeks. The honey is so fragrant at some seasons as to scent the house; and there is an added charm to bee-keeping in this country from the fact that the bees are stingless. At sunset the chapel bell sounded for *oracion*, or evening prayer, and all the laborers gathered about with uncovered heads. When it was finished, they came to us and wished us "*Buenas noches*" (good night). This delightful custom is in vogue in every portion of the country; in Merida, the servants and children never failed to give us this salutation of peace, as the last stroke of the bell died on the air.

That evening, in March, 1881, was a glorious one, with a new moon, and Venus, Jupiter, and Saturn forming a triangle above her. We slept in hammocks in the corridor, and at four next morning were out in search of José, our driver; at six, after waiting a long time for chocolate, we left the hospitable mayor-domo, who was complaining of having been kept up after his

usual hour of retiring, eight o'clock, by some of his people who had been off at a *fiesta*. The hacienda of San José is near the Sierra, the only line of hills in Yucatan, and here called mountains. These we climbed easily, sitting in the front of the volan, to avoid tipping up the mules, and descended the other slope before the sun got hot. The driver urged the mules down hill at a furious pace, lashing them all the way, over steep, slippery

CORRIDOR OF HACIENDA.

rocks, and along the borders of high cliffs, but when we reached level going he pulled them up! We had been going about two hours, when we saw José pull out a long black cigar and light it. By this sign we knew we were near a town or hacienda, this being an invariable custom, as no high-bred driver will appear in any village or plantation without a lighted cigar in his mouth and driving like mad. Sure enough, the hemp-fields soon hove

in sight, and then the hacienda, into the yard of which we rode wildly, took out the mules, and carried our traps to the corridor, — and then asked permission to stop there. The proprietor was there, by some good fortune, and gave us the best he had at once. Hammocks were assigned us in a large room, our mules were stabled, and we were invited to partake of the hospitality of the hacienda for the week that we intended to stay there. It was a mile to the ruins, portions of which we found imbedded in the walls of the buildings and the fences. At the right hand of the corridor was the veritable "two-headed tiger" discovered and unearthed by Stephens, forty years ago, at the palace of Uxmal, and brought here by the present proprietor for safe-keeping; and a heap of small idols lay at the foot of a palm tree growing near it.

So much did the proprietor of Uxmal facilitate our preparations, that at ten o'clock we had traversed the intervening space between the hacienda and the ruins, and were at the base of the great pyramid. I do not know whether a writer ought to describe his sensations, or merely what he sees, leaving it for the reader to imagine what he would have thought and felt had he been there; but it may not be out of place to say that I was elated at the prospect of looking for the first time upon these magnificent ruins, and that a variety of emotions kept me in a state of expectation and pleasurable excitement. We climbed up the steep sides of the pyramid, generally known as the *Casa del Adivino*,[1] or "House of the Prophet," and from its summit, from the roof of its topmost building, — difficult to reach and offering precarious foothold, — a glorious panorama was spread before us.

West, directly below, was the *Casa de las Monjas*, or "House of the Nuns," in its ruins beautiful beyond description; south, the principal building of the group, the "House of the Governor,"

[1] Literally, "House of the Soothsayer," or "Diviner," but called "House of the Dwarf," from a fanciful legend, related by the natives, that it was built by a savage dwarf in a single night. The names of all the buildings are misnomers, their original ones (if they had any) having been forgotten, and replaced by comparatively modern appellations by the Spanish invaders.

or *Casa del Gobernador*, raised upon its immense terraces, one of which also supported the "House of the Turtles" (*Casa de las Tortugas*), with the "Nameless Mound" beyond them all; east of south lay the ruins of *Casa de la Vieja* (the "Old Woman's House"), all tumbled about her head; from south to west circled mounds and clusters of ruins, such as the "House of the Pigeons" (*Casa de las Palomas*), and the remains of an extensive series of buildings; beyond this city could be seen other ruins, perhaps other cities, reaching out in a long line that could be traced miles away.

> "The dense wild wood that hid the royal seat,
> The lofty palms that choked the winding street,
> Man's hand hath felled, and now, in day's fair light,
> Uxmal's broad ruins burst upon the sight."

A great plain surrounded us, smooth and level as the sea, with a range of hills circling from northwest to southeast. This mound, or pyramid, lying due east from the city, was probably used as a place of sacrifice. The rooms of the building that forms the apex of the structure are small, and with the peculiar arch without the keystone, the entire building being about seventy feet long and only twelve feet deep. It is rich in sculpture; the hieroglyphics on the western part are in a good state of preservation, and a certain archæologist claims to have the key to their meaning. The entire pyramid[1] is one hundred and five feet high, "not exactly pyramidal," but with rounded sides. A staircase, seventy feet wide, one hundred and two feet high, and containing ninety steps, climbs the eastern face of the structure from the base to the platform. The steps are narrow and steep, and we can well believe that when, as the old historians relate, the high priest kicked the body of the victim of sacrifice from the house of the altar, it fell the whole distance of a hundred feet to the ground, — that "it never stopped till it came to the bottom." We had much difficulty in getting up,

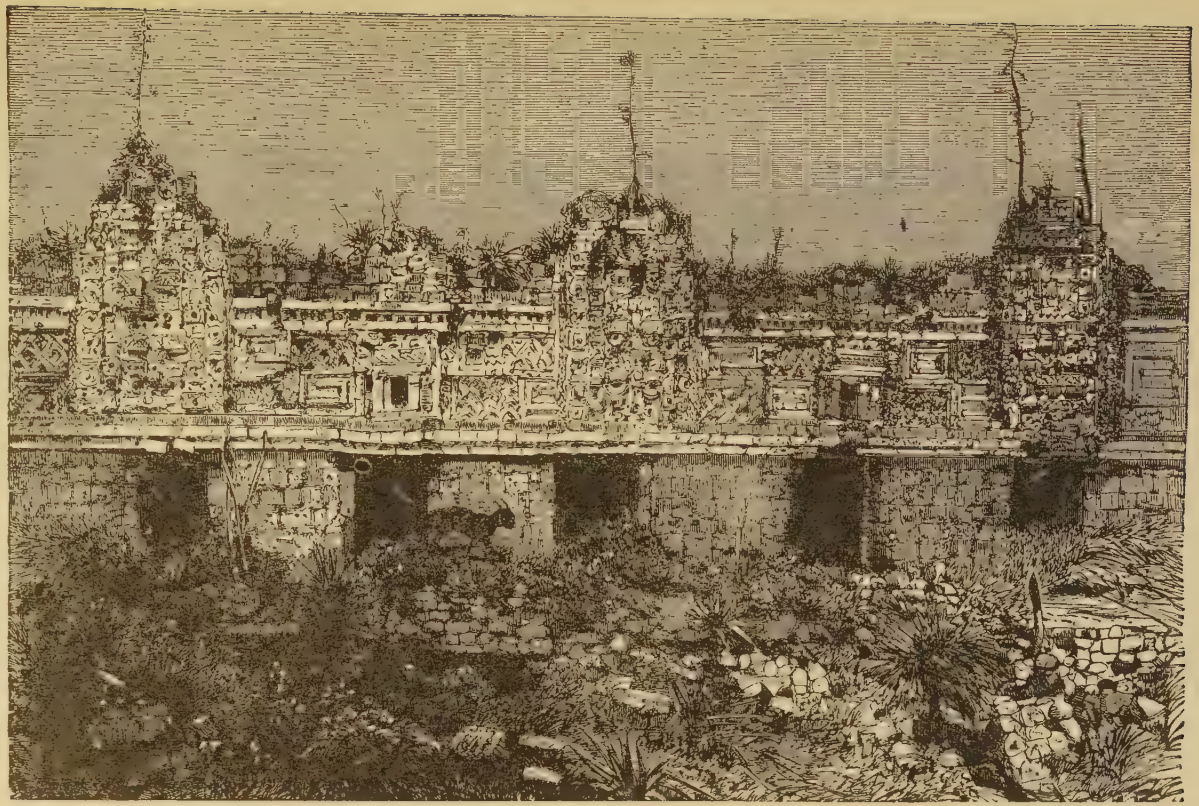
[1] Norman, who visited Yucatan between the two visits of Stephens, — 1840 and 1842, — varies slightly in his measurements from the latter author, whose descriptions I follow in the main; but his examination was a hasty one, and where there is a difference, it will be safer to accept the data furnished by Stephens.

and a great deal more in getting down, where a single false step would have precipitated us headlong. Waldeck[1] considers this a place originally devoted to sacrifices, and says the "Asiatic style" is easily recognized in the architecture of this monument.

By far the finest building of the city, conspicuous alike from its position and the completeness of its preservation, is the "Royal Palace," the *Casa del Gobernador*. After the Conjurer's Pyramid, this was the next pile visited by us, and made the point of departure for subsequent excursions during the five days we remained there. It stands upon the topmost of three terraces of earth, — once perhaps faced with stone, but now crumbled and broken. The lowermost and largest is 575 feet long; the second, 545 feet long, 250 wide, and 25 feet high; while the third and last is 360 feet in length, 30 in breadth, and 19 in height, and supports the building, which has a front of 322 feet, with a depth of only 39 and a height of but 25 feet. It is entirely of stone without ornament to a height of about ten feet, where there is a wide cornice, above which the wall is a bewildering maze of beautiful sculpture. The roof was flat and once covered with cement, in the opinion of certain travellers, but is now a miniature forest of the indigenous shrubs and small trees of Yucatan, — a hanging-garden of Nature's own formation, such as she covers every object with, in a few years, in this tropical portion of her domain. There are three large doorways through the eastern wall, about eight feet square, giving entrance into a series of apartments, the largest of which is sixty feet long and twenty-seven deep, divided into two rooms by a thick wall. The ceiling of each room is a triangular arch (such as is figured a little farther on), capped by flat blocks at a height of twenty-three feet above the floor. The latter, like the walls and the jambs of the doorways, is of smooth, faced stones, that may once have been covered with cement.

It is impossible to convey in mere words a picture, either in general or in detail, of this beautiful building; and hence I supplement my meagre description with engravings which I have procured, knowing that they will speak more eloquently than

[1] *Voyage Pittoresque et Archéologique dans la Province de Yucatan*, Paris, 1838.



NORTH FAÇADE OF CASA DE LAS MONJAS.

the pen. In them, the intricate details of the sculpture, that baffled even the pencil of the accomplished Catherwood, are presented clearly at a glance.

Within a stone's throw of the "Governor's Palace" is a small building far gone in ruins, displaying workmanship of great skill, and sculpture chaste in design, called the "House of the Turtles," — *Casa de las Tortugas*. It derives its name from a row of turtles used as ornaments to the upper cornice. It may have served as the kitchen to the royal residence, — accepting Indian tradition in regard to the names, — but was once beautiful enough for a temple.

If the "Governor's House" claims attention from its conspicuous position and size, the *Casa de las Monjas*, the so-called "House of the Nuns," presents the greatest variety of sculptured forms and richest ornaments. It is composed of four buildings, the longest of which is 279 feet and about equal in height to the palace, enclosing a court 258 feet long and 214 wide. The entrance is on the southern side, through a high arched gateway ten feet wide. There are no doors or windows opening on the outside, though there are in all *eighty-eight* apartments opening upon the court.

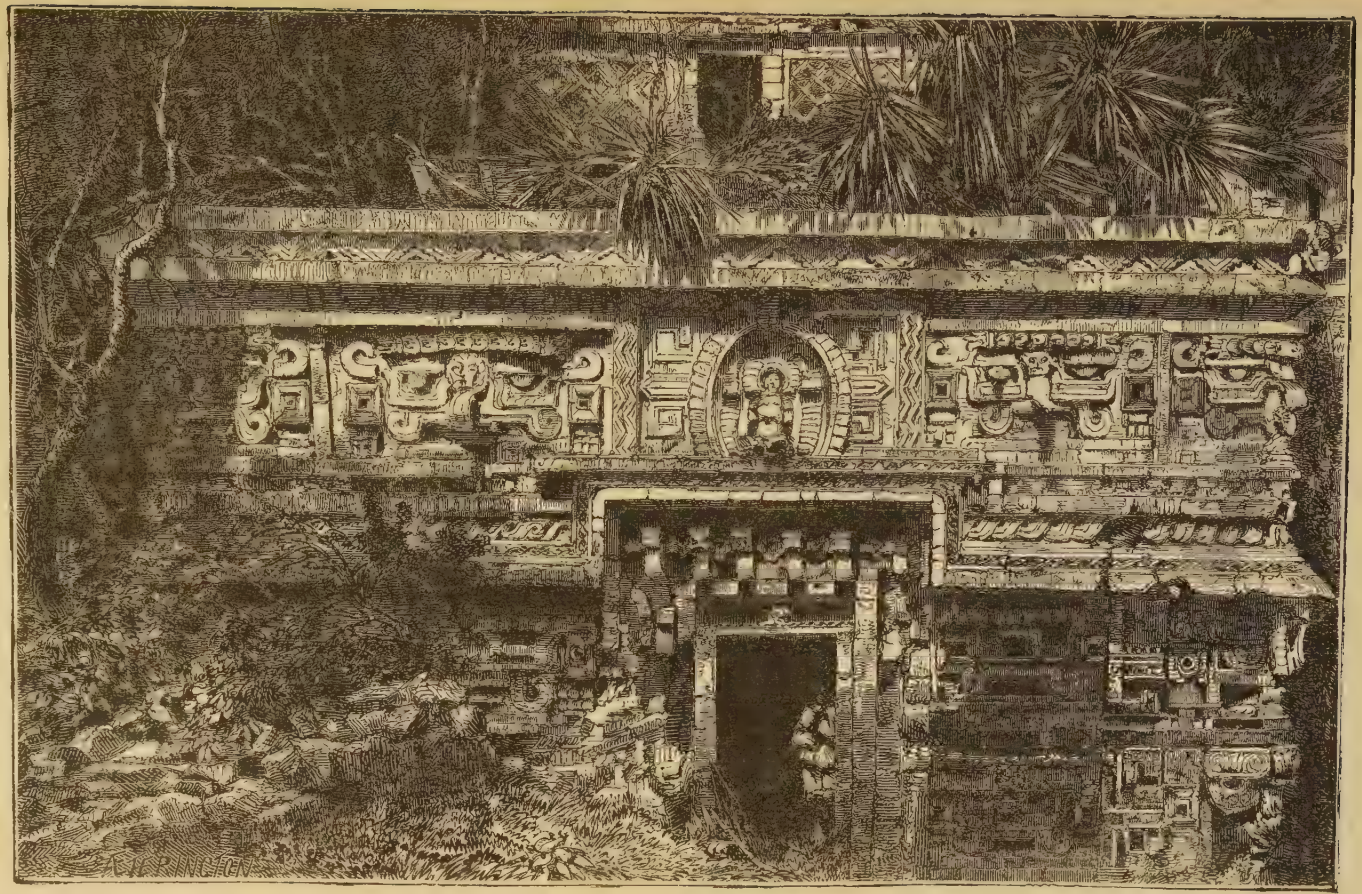
The façades of this immense quadrangle are ornamented, says Stephens,[1] with the richest and most intricate carving known in the art of the builders of Uxmal. That portion forming the western boundary, at the left as one enters the court, is the most wonderful of all; for its entire length of 173 feet is covered by two colossal serpents, whose intertwined bodies enclose a puzzling variety of sculptured hieroglyphs. Theory and speculation do not enter into the plan of this work, or I should venture a few remarks upon the personage or deity this great serpent is intended to represent. We shall see later on, in Mex-

[1] This traveller, accompanied by the talented Catherwood, visited and described the most important ruins of Honduras, Guatemala, Chiapas, and Yucatan, and his works, "Incidents of Travel in Central America, Chiapas, and Yucatan," and "Incidents of Travel in Yucatan," have been accepted as standard authorities upon them. We can hardly travel there without treading in his footsteps, and hence I have used his measurements of buildings, and can vouch for the accuracy of his descriptions.

ico, the same feathered or plumed serpent, and cannot help recalling the Aztec tradition regarding it. In another decade of years it is possible that this grand conception embodied in stone by the Indian sculptors will be mutilated beyond repair, as a great portion of the wall has already been torn away for building purposes. Yuccas and other semi-tropical plants adorn the roof of this building, and also the ground in front, rendering approach to it somewhat difficult. At the southern end of the court the folds of the serpents surround a standing human figure, now much mutilated, a subject rarely used in the ornamentation of these buildings. If the drawing by Catherwood, made forty years ago, is correct, all the faced stone below the figure has been torn away since he was there. The northern and eastern façades have been greatly injured since Stephens's visit, and most of the grotesque ornaments, the rosettes and heads, broken or wrenched entirely away. The hand of man proves more ruthless than the hand of time; and, since the exportation of antiquities has been forbidden by the Mexican government, it is evident that these stones have been removed by the proprietors of Uxmal, or the laborers, for use in their dwellings.

These three structures comprise the principal buildings at present in a state of preservation that makes them of interest to the general traveller. There are others, even in this group, as mentioned in the view from the high mound, but they are in such a state of ruin that their original form is obliterated.

South from Uxmal are the extensive ruins of Kabah, where are buildings with fronts of one hundred and fifty feet, and lavishly ornamented. Unlike the façades of the buildings of Uxmal, which were only decorated above the doorways, those of Kabah were "ornamented from their very foundation." Stephens also adds: "The cornice running over the doorways, tried by the severest rules of art recognized among us, would embellish the art of any known era; and, amid a mass of barbarism, of rude and uncouth conceptions, it stands as an offering by American builders worthy of the acceptance of a polished people." At Labná the sculpture is profuse, grotesque, and



HUMAN FIGURE, CASA DE LAS MONJAS.

florid. Of the sixty or seventy ruined cities scattered throughout Yucatan, none offers points of greater interest than Uxmal. The ruins of Copan, in Honduras, are distinguished for the number of idols and altars richly sculptured; those of Palenque, in the State of Chiapas, for the profusion of stucco adornment, tablets, bas-reliefs, and statuary; Uxmal, for the richness of its sculptured façades, the magnitude of its buildings, and the chasteness and beauty of its statuary, judging from the few specimens found there. There was recently discovered at Uxmal, by the archæologist, Dr. Le Plongeon, in the summer of 1881, a beautiful statue, surpassing anything ever found among the ruins of Central America. Fearing that, if made known to the government, it would share the fate of his other discovery at Chichen, that of Chaacmol, he closed the aperture leading to it; and this fair conception of Indian art was again consigned to the darkness in which it has rested for centuries.

Who are the people who built these structures, who lavished the work of a lifetime upon their adornment, and who have passed away without leaving a memorial (except in undeciphered hieroglyphs) of their existence? Various are the theories propounded, and presumptuous would he be who would now offer one differing from those of the learned men,—who all differ among themselves! Writers seeking to find in the Bible the root of the tree of the human family have ascribed these buildings to the Jews, to the Phœnicians, and to the Egyptians. Some assign to them a great antiquity, others claim that they are of comparatively recent construction. Among the latter is Stephens, who says, "They were not the work of people who have passed away and whose history is lost, but of the same race who inhabited the country at the time of the Spanish conquest, or of some not very distant progenitors." Yet he admits that there are no traditions, (as there should be if his supposition were correct,) as in the case of Egypt, Greece, and Rome; and this, with many other facts, is in support of the theories of Dr. Le Plongeon and other hardy thinkers of later date than Stephens, who do not fear to deliver their unshackled opinions. The above-quoted writer also thought that perhaps the Toltecs,

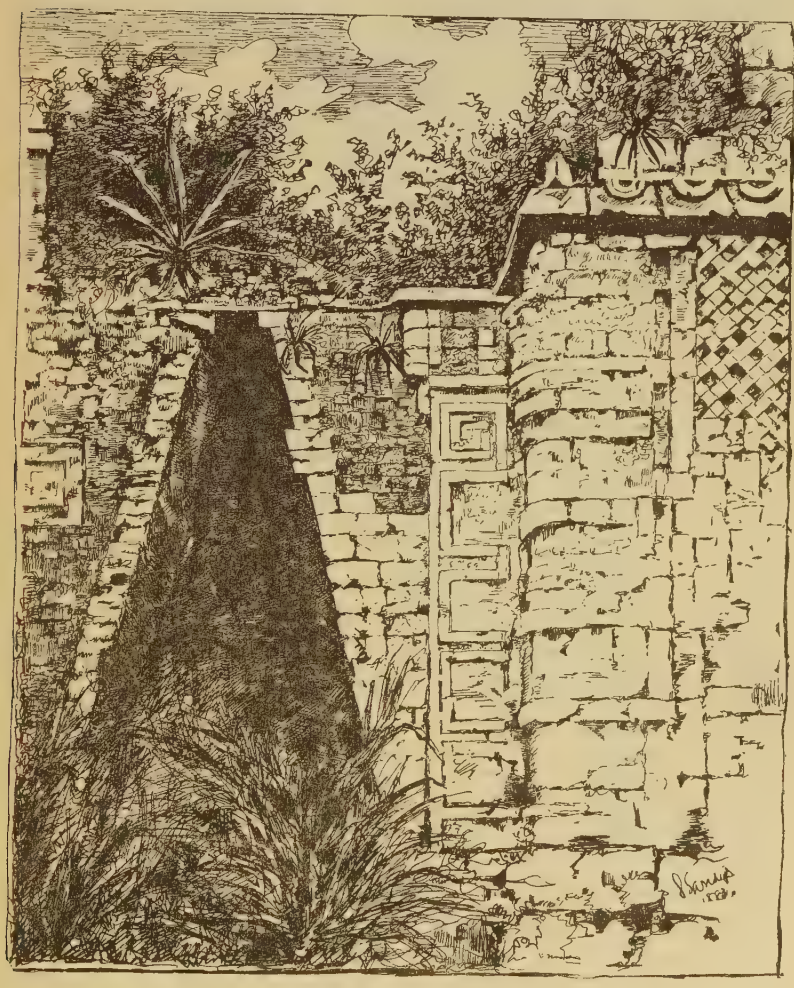
when they left Anahuac, came here, some of them, and built these cities; yet again he says, "They claim no affinity with the works of any known people, but a distinct, independent, and separate existence." (!)

It will not be permitted for men chained to any particular creed, who would fain be the Champollions of the New World, to decipher the inscriptions on the walls of these cities. We have seen enough of this kind in the work of the Spanish ecclesiastics, who perverted history that Indian traditions might conform to the views of priests and monks squinting through Papal spectacles. They do not take into account the cumulative evidence in favor of an *original American civilization*, but crawl about, groping for some clue that shall lead up to Shem, Ham, and Japhet!

Many blunders have been committed by writers reasoning from false premises; but the most amusing, perhaps, is one by Prescott, who, unfortunately, obliged to avail himself solely of the researches of others, was led frequently into blind alleys and byways. In writing of the ruins of Uxmal he says, "Another evidence of their age is afforded by the circumstance that in one of the courts of Uxmal the granite (?) pavement, on which the figures of tortoises were raised in relief, is worn nearly smooth by the feet of the crowds who have passed over it; a curious fact, suggesting inferences both in regard to the age and population of the place." Now this "granite pavement," with its carven tortoises, has never been seen by mortal man, although described by the unreliable and wonder-seeking Waldeck. The native historian of Yucatan, Señor Ancona, calls attention to this fact, and declares that we are wholly indebted to the imagination of Waldeck for this statement: "*Estas tortugas, expuestas a las piedras de la muchedumbre, solo han existido en la imaginacion de Waldeck.*" It is true that there are many sculptures of this kind in Uxmal, but only on the doors and on the cornices.

The Consul and myself fixed our residence in the *Casa del Gobernador*, in the inner room of the great apartment. Some beams had once crossed the room, at ten feet or so above the

stone floor, but they had fallen out centuries ago, leaving only the sockets. Into two of these we fitted the ends of a small sapling, which our Indian cut, and crossed the space twenty



THE MAYA ARCH.

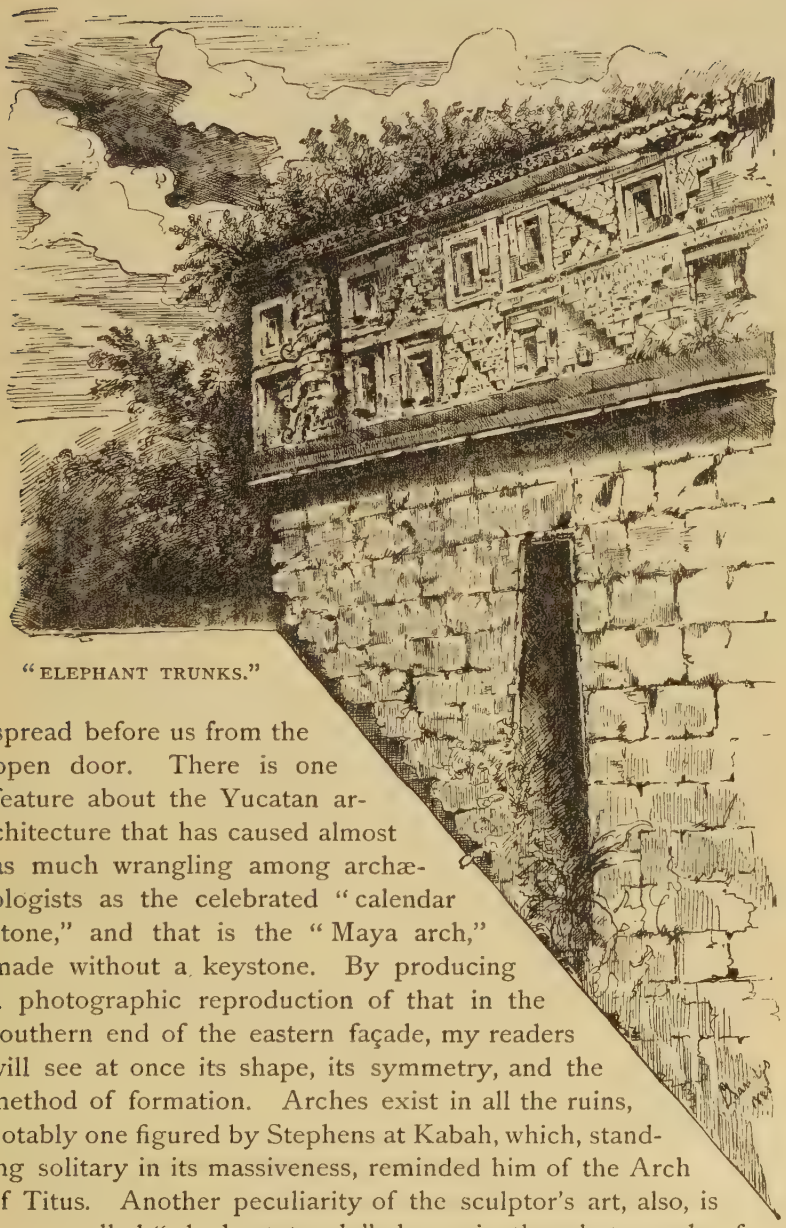
feet beyond with another, and in this manner secured a hanging-place for our hammocks. The generous proprietor of the

hacienda had furnished us with an Indian, a pure Maya, descended, perhaps, from the very builders of this palace, who spoke only his native tongue. By signs, and with a few Maya sentences the Consul understood, we managed him very well. He cleared away the trees and bushes about the walls, so that I could photograph them, made our fires night and morning, carried our apparatus, and made himself much beloved.

Though we passed several days here, we had few adventures, and one will suffice to illustrate how we passed the time in the palace of the departed kings. In the morning we went out to the *aguada*, or watering-place, of the ancient city, a small pond that may originally have been artificial, but which bears no evidence of it now, being surrounded with sedges and water plants, and with little islets in it, harbors of refuge for numerous coots and gallinules. I shot one of these latter birds, with long, slender toes, and strong spurs on its wings, and also some beautiful yellow-breasted specimens of *tyrannus* and crimson flycatchers. From the aguada, toward which the surrounding plain sloped naturally, covered with a thick growth of low trees, a perfect view was spread out of the entire city, its rear portion showing what a stupendous monument the giants of those dead and gone days had erected. More ponds were scattered about here, some shaded by trees, and all welcome as rare sights to greet the eyes of one travelling in Eastern Yucatan.

In crossing a grassy pasture lying in the great quadrangle between the buildings, I astonished our Indian guide beyond measure by shooting a king vulture, as it flew overhead. I was attempting to creep upon it, when it flew; the Indian, who thought then that I had lost all chance of shooting it, was rooted to the spot when he saw it fall hurtling through the air, and strike the earth at the base of a prostrate pillar of sculptured stone. He recovered himself in season to bring me the bird, but examined us both attentively; and when he later explained, in his guttural language, the whole thing to a group of friends, they all regarded me with increased respect.

The heat of noon was very oppressive, and we passed that period in the corridor of our house, admiring the prospect



"ELEPHANT TRUNKS."

spread before us from the open door. There is one feature about the Yucatan architecture that has caused almost as much wrangling among archæologists as the celebrated "calendar stone," and that is the "Maya arch," made without a keystone. By producing a photographic reproduction of that in the southern end of the eastern façade, my readers will see at once its shape, its symmetry, and the method of formation. Arches exist in all the ruins, notably one figured by Stephens at Kabah, which, standing solitary in its massiveness, reminded him of the Arch of Titus. Another peculiarity of the sculptor's art, also, is the so-called "elephant trunk," shown in the photograph of

the northwest corner of the palace. Waldeck gives it this name, and Stephens, commenting on this, wonders where the early architects obtained their pattern, since the elephant is not indigenous to America. But the *mastodon* was; though this item in support of the theory of great antiquity is not relished by the seekers after a connecting link with the Old World.

As night came along, away went our faithful Maya, his love for us not proving strong enough to induce him to remain in the ruins after dark. He was perfectly right, for he could quote Indian tradition to the effect that the builders and former occupants return at night and seize upon any of their kind found within the castle walls. So the Consul and I were left alone, to brave the terrors of a night in the damp and lonely ruin. Just at sunset we climbed the immense pile known as the "Nameless Mound," and, scrambling over loose stones, amongst agave and prickly-pear, reached the top, a platform of rough rock, with many holes here and there, suggesting caverns of unknown depth. We found here shards of pottery, arched openings on the north side, and everywhere sculptured stones, in evidence that much labor had been expended here. From it one overlooks the entire city; and we saw the sun go down, gilding with his last rays the Diviner's House on the top of the great pyramid, and glancing over the walls of the "House of the Nuns," and the *Pajaros*, or "House of Birds." We had seen him in the morning, shining full upon the eastern face of this "hill of sacrifice"; and now we attempted to people anew its deserted halls with some of the vast multitude that are said to have assembled before it when a victim was offered to their idols. Remains of their idol worship lie scattered about the courts and over the forest-covered plains, showing that they had a good variety of gods; but whether all at once, or in successive ages, who can tell?

We descended to our quarters in the *casa*, and, sticking a candle up in a bottle and lighting it, prepared for the night. Darkness completely enveloped us; the cries of the various birds, such as jays and *chachalakas*, had ceased; —

"... the night-eyed insect tribes
Waked to their portion of the circling hours";—

the stars came out and smiled down on us.

A flat stone, that had once formed a portion of the wall, served as a table, and stones for seats, that had been carved a thousand years ago with patient art. Soon the Consul left me to my enforced labor of skinning birds, and sought his hammock in the inner room, whither I did not follow him till well past midnight, sitting up purposely to tempt the ghosts and note the noises of the night. They have a charm for me, these nocturnal sounds, and many a tropic night I have lain awake, beneath rustling palms and waving plantain leaves, striving to analyze the myriad voices in the trees. But there were few here; man, beast, and bird seemed to have deserted the dead city, and to have left it to silence.

As I finally rose to retire, a noise like the distant roar of the sea came down to me, caused by the hundreds of bats and vampires swooping through the resounding arch above. Entering the inner doorway, with the flaring candle shaded by my hand, there stared me in the face the bloody imprint of the *red hand*, that mystery to antiquarians, and the yawning hole, dug by some vandal, to satisfy himself the walls were solid.

The rumors prevailing among the Indians that there were tigers lurking in these ruins, and that the *sublevados* sometimes extended their nocturnal raids as far as Uxmal, induced us to carry our fire-arms to bed with us, and each had a gun leaning against the wall within reach, and a revolver hanging at the head of the hammock.

It was not long after I had extinguished the candle, that I was dreaming of Indians, and their natural concomitants, murder and bloodshed. That red hand haunted me: an enormous savage stood by my hammock, with a hand dripping with blood which he was about to imprint on my face — when I awoke, and found it morning.

IV.

A NEW INDUSTRY AND AN OLD MONUMENT.

THE indigenous product of Yucatan is hemp; or, to begin the subject correctly, and with a due regard for botanical nomenclature and local appellation, this so-called "Sisal hemp" is not hemp at all, but *henequen*, the *Agave Sisalensis*. It has a true fibre, possessing such excellent qualities that the demand for it is greater than the supply. The chief excellence of the plant is, that it requires little soil to grow upon, and springs up everywhere from crevices in the great coral ledges that constitute the surface of the peninsula.

A great proportion of this territory is covered with dense scrub, composed of stunted trees and bushes matted together with thorny vines; beneath this scrub is the rock that even the vegetable mould of centuries but thinly covers, owing to the annual fires that run over the country. A portion of this scrub is cleared, — that is, the bushes and trees are cut down and left to dry for a season, — and the next year, if the previous one has been dry, fire is put to this clearing and the ground opened by the laborers, who dig holes in the rocky soil and set out the plants. Each clearing is divided into *mecates*, of about twenty-four metres square, and the plants are set out about eight feet apart each way, giving from eighty to one hundred plants to each mecate. The land is kept clean till the plants are well grown and they arrive at maturity, or at a point for profitable cutting, in from five to seven years, when the larger leaves are four or five feet in length. Each plant yields from twenty to thirty leaves annually, for a period of from twelve to fifteen, eighteen, or twenty years; about a third more in the rainy than in the dry season of the year. It is said to require from six

to eight thousand leaves to make a bale weighing four hundred pounds.

When arrived at sufficient size, the leaves are cut, commencing at the bottom, and from the field are carried to the "scraping-machine," which consists of a large fly-wheel, with strong, blunt knives, transversely attached to its periphery. Against these knives, carried around on the rapidly revolving wheel, the leaves are pressed, one by one, by means of a curved lever, in such a way that the pulpy portion is scraped off, leaving the fibre. The men (always Indians) feed the machine with astonishing rapidity, thrusting in first one end of the leaf, and then the other, and pressing it between the knives and lever by a motion of the leg. Among the poor people the leaves are scraped by hand; and these poor laborers work mostly at night, from evening until morning, because the heat of day causes the juice to ferment, and irritates the hands, while it also spoils the fibre. Four men are required to attend each machine, including those who bring the bundles of leaves and carry away the refuse pulp.

A good scraper will produce a bale of dried fibre per day, which comes from the machines in long strips, looking like green corn-silk, and is laid in bundles, then carried into the drying yard and hung over light poles placed on a framework about three feet from the ground. It soon dries, in a hot day in three or four hours, when it loses its greenish hue and appears white and glossy; it is then baled by means of hydraulic presses, each bale holding from 350 to 450 pounds. As must be apparent from a consideration of the ease with which this henequen is raised, from the fact that the plants can be obtained wild at little expense, and from another important fact, that little care is necessary for the plant after it once begins to yield, here is a culture that promises great returns for little outlay. Land is cheap, and, when it can be obtained at all, is bought by the square league. The principal cost is in clearing it, and for machinery; after that succeed only the ordinary expenses of carrying on a farm; — a farm where there is no laborious course of preparation each year for the planting of seed, no fatiguing hoeing of crops, no long season of winter to provide for; only

the cutting and harvesting of a spontaneous product, by means of laborers who receive such ridiculously small daily pay that it would not be accepted by a farm hand in the North for the work of an hour. Fortunes are made here in henequen, and the fortunate owners of haciendas live a life of luxury; they and their children travel and are educated in Europe, and spend much of their life abroad. Each hacienda is in charge of a mayor-domo, or manager, and the owner rarely lives on his estate, which often covers a territory many leagues in extent.

The amount of hemp, or henequen fibre, shipped from Progreso, the port of Yucatan, in 1880, was, on the authority of the United States Consul, 97,351 bales, weighing 39,501,725 pounds, and valued at $1,750,000! As the raising of the henequen was undertaken in times comparatively recent, — within, say, twenty years, — this amount is a very good showing. This was shipped in fifty-three steamers and thirty-five sailing-vessels, and, of the total amount, 85,000 bales were sent to the United States. This industry is rapidly growing, and there is an opportunity here for capitalists, it would seem, to spend large sums. From the henequen fibre are manufactured numberless articles, for the plant has almost as many uses as the palm; but not quite so many as its sister plant of Mexico, the maguey.

In a little suburb of Merida, called Miraflores, is a factory for the manufacture of cordage, coarse cloth, and cables, from the raw fibre, which the proprietors buy from the Indians and the haciendas. Its machinery is very rapid and good, and was made in Boston some fifteen years ago. The machines are tended by Mestiza girls, who are very neat at their work, going about quietly and without even singing or whistling. They are said to be very careful and faithful, and they are very modest; and a pretty picture they present, moving about in their white skirts among the flying spindles and toothed bands, hardly looking up from their labor.

The Indian makes from the agave fibre many most necessary articles, — bags in which to carry packages, saddle-cloths, sandals, ropes, and twine; if he wants any of the last, he goes into the forest for a wild plant, beats out the filament,

twists it in a crude but satisfactory way, and is supplied. The greatest of all uses to which this filament can be applied is the manufacture of hammocks. All Yucatan sleeps in a hammock, — that is, every individual Yucateco and Yucateca sleeps in his or her individual hammock. In many towns in the State a bed is unknown. The most respectable, as well as the most

ARCH OF AKABNÁ.

lowly there, are born, live, and die in a hammock. They pass a great portion of their waking as well as sleeping hours in them. In their manufacture, then, the natives excel, and great numbers are made and shipped to New York. It is only the coarser variety that reaches the States, for the best ones command here higher prices than they could bring in New York, and rarely

leave the country. From ten to fifteen dollars is the price for a good woven hemp hammock, and some bring even twenty-five and thirty dollars. They are very durable, and endure years of wear; there is as much difference, too, in hammocks as in beds.

Yucatan has other products than hemp, but that is king. Sugar is made in the eastern portions in a limited way, but, as the best sugar lands are in the south, and all in possession of Indians supposed to be wild, but little is done in this direction. Hardly enough vegetables are raised to supply the people, and cotton only in small quantities. Regarding the culture of cotton, I should like to introduce something that I found in an old letter-book of the consulate, written by a former acting native consul in answer to inquiries from Washington.

"The culture of cotton is very little here, and is cultivated only on the southern part of this city and in a very small quantity, and grows at the extent of twelve feet. No other insect enemies of the cotton plant has been found but its worm, and the worm is exactly as mentioned on the letter, that is, a great worm with white lines and black dots. Cotton worm is always on the cotton leaf, and there is no doubt that this worm kills the plant. He does not touch the accorn of the cotton, as he remains always on the leaf. The worm has always been in the country, as it belongs to the plant. Cotton has been growing here for more than twenty years, and it grows wild, but it is inferior to the plant cultivated. The prevailing direction of winds, during the months of March, April, June, and July, are generally breeze and southeast. Any more information that I may have respecting the cotton worm and the insect enemy of the plant I will inform immediately."

It has been my blessed privilege to inspect several such letter-books in various consulates in the south, and the amount of information contained in them is not unfrequently equalled by their rare humor, especially if the product of alien representatives.

One morning early we hired a *coche* and set out to visit the estate of Don Alvaro Peon, who had invited us to inspect his hemp plantation, and some remarkable ruins situated there. It was moonlight when we started, but as we passed the *Calle*

del Elefante, the "Corner of the Dead Duck," and the "Street of the Monkey," pale Luna was swallowed up in the stronger light of day. Through the grated windows, then being thrown open, we got glimpses of pretty, brown-skinned girls, with black hair and dark eyes, and loose-hung uipils, just leaving their hammocks.

GRASS-SELLER.

On the borders of the city we encountered many mule teams, with loads of hemp, the mules tired and the drivers sleepy. Some of them had come from Valladolid, one hundred and twenty miles distant. There were also groups of Indians with great heaps of grass on their backs, and huge bundles of *ramon*, or leaves of trees used for forage, and girls and women bearing heavy loads on their shoulders supported by bands across their foreheads. They, too, were tired, some of them having travelled all night. At a distance, the glowing skins of these half-naked Indians appeared brick-red in the sun.

At noon we had reached the little village of Tixpenal, where there are the ruins of a large church surrounded by numerous thatched huts. The destruction of this church was due to one of the governors of Yucatan, who shot at a vulture on the roof and lighted the thatch, the building being destroyed, except its massive walls; these were black with buzzards. With becoming regard for the wants of the people, the governor promised to build another church, — but he never did it. As the sun grows hot, the vultures, which have been busy about the streets and back yards, and roosting on the walls and roofs, are seen sailing in circles high in air, one around the other. Between their thatched huts and their outbuildings, the Indians construct connecting arbors, over which grows a kind of gourd, the vine covering them with a thick matting, wholly impervious to the sun. So these people live in cool shade, walking about in loose cotton garments, with bare feet and legs, and with sandals on, — sandals kept in place by a line between the great toe and the next, and wound about the leg above the ankle.

We reached San Antonio late in the afternoon, and were received in a princely manner by Don Alvaro Peon, the courteous proprietor. This gentleman, a splendid specimen of manhood, cultured and travelled, is the present representative of an ancient and distinguished family, which estimates its possessions by hundreds of square leagues. In going to Uxmal, I had ridden all day, a distance of nearly fifty miles, over territory once owned by his father. This estate of San Antonio was eleven leagues square, and contained twelve hundred acres planted with henequen, and many more in process of subjection. At about seven, in the cool of the next morning, we left the hacienda for the farther one owned by him, Aké, our objective point. We rode in the coach the Empress Carlotta used when in Yucatan. Don Alvaro was her last escort when she left Mexico, and cherishes the memory of her visit as one of the brightest episodes of his life.

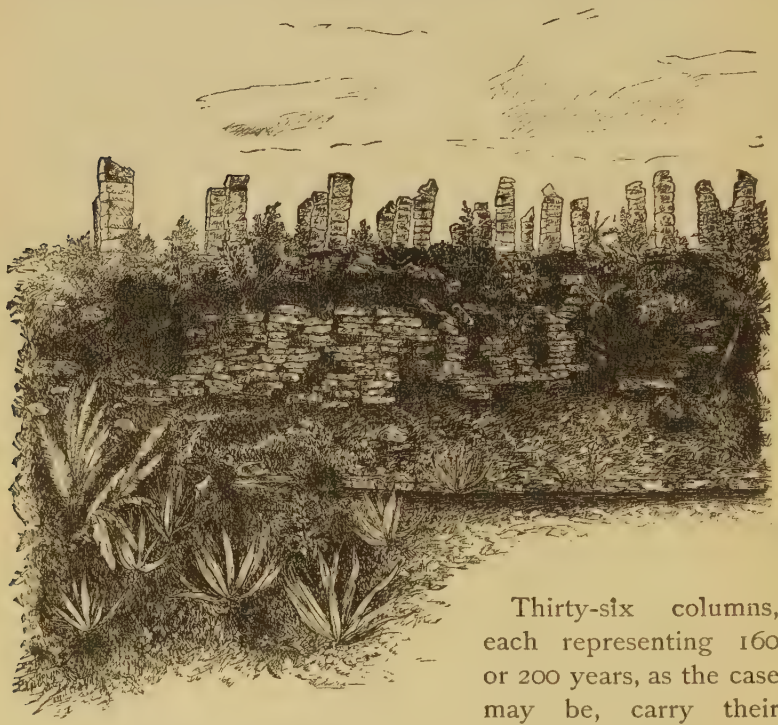
Driving through pleasant lanes, we emerged upon the King's Road — *el camino real* — at the town of Tixkokob. Here are made all the cheap hammocks that are sent to the United

States; every hut we passed had one stretched upon a frame, with a woman engaged upon it with deft fingers. Aké, which we were then approaching, was the last place visited by Stephens, in 1842, in his famous exploration, during which he found forty-four ruined cities to describe. As he did not always subordinate present comfort to archæological requirements, he left it with a casual glance, and a remark upon the vastness of the remains. It remained for a later explorer to describe them accurately, and inquire into their meaning.

After we had despatched a substantial breakfast, in a small building used for the entertainment of visitors, Don Alvaro conducted us to the great mound, the wonder of all who have beheld it. It measures, according to Stephens, 225 by 50 feet, upon the platform, which supports thirty-six shafts, or columns, from fourteen to sixteen feet high. These are approached by an immense range of steps, 137 feet long, each step being four feet five inches wide by one foot five inches high. Pitching my camera in a prickly field of hemp, I took a general view of the entire platform with all its pillars, and then, approaching nearer, a single view of the immense columns, showing their structure.

Now, this great platform and these Titanic columns, what is their meaning? Aké, say the historians, was inhabited by Indians at the time of its discovery. A great battle was fought here, between the Spaniards under Don Francisco Montejo and the Mayas, equally sanguinary with that decisive one on the site of Merida, a little later. The early chroniclers also throw light upon these columns; they were intended, not as supports for the roof of a temple, not as altars for sacred fires, but to serve as a record of the age of the race! They were called *katunes* (epochs), says Cogolludo, and each stone represents a period of *twenty years*. Every five years, a small stone was placed on each corner of the uppermost rock, beginning at the eastern side and ending at the southern. When the final capping-stone was added, there was great festivity and rejoicing. By referring to the photographs here reproduced, the reader will note the system of construction, exactly as described by the

Spanish writers. But instead of there being *eight* great stones in every column, as they say, there are in some cases *nine*, and even *ten*. This, however, is of little moment; there may have been ten in every column, — probably were, — the topmost one of which may have fallen off. Thus the column would be finished when an even two hundred years had swung its round, and then left to stand forever, as a monument to the people who had erected it and as an epoch in the world's great cycle.



GENERAL VIEW OF AKÉ.

Thirty-six columns, each representing 160 or 200 years, as the case may be, carry their antiquity back to a very early date indeed. "There was," says a learned writer, "an undeniable lapse of 5,760 years from the time the first stone was placed on the platform until the place was abandoned; and we know that this very town of Aké was still inhabited at the time of the Spanish conquest." Whether this be so, or, as another erudite antiqua-

rian queries, whether "they may have served as symbolical history, set up as memorials of past antiquity," they are the work of giants, — remains Cyclopean. Immense rocks, that it would take many men to lift, ranged pile on pile, by some deluded yet painstaking people; yet all this work, this mighty labor, has gone for naught!

By climbing to the top of one of the columns, one can look over the extensive plain for twenty miles; the little towns in the distance betokened by trees of darker green and white walls, mounds dotting the landscape in every direction, and the nearer pastures overgrown with prickly shrubs. Close by the house, built out of the ruins of a former one, are two mounds, one with immense flat stones as steps, known as the "House of the Priest." The ground is cleared immediately about the house, and a flower garden blossoms among dismantled walls, while a hemp machine performs its duty close under the shadow of the great katunes. Within the circle of older ruins are the remains of a Spanish battery, built, probably, after the bloody fight of Aké. As this place is used only as a *rancho*, or cattle farm, no improvements are going on, and it is inhabited only by a few Indians and the mayor-domo.

West of the great platform are other mounds, one of which contains a stone structure called *Akabná*, or dark house. The mound was evidently terraced, like the others, many a great block remaining *in situ*. It is now an undistinguishable mass of rocks, the central portion having fallen in, and is covered with cactus, agave, and wild wood. We descended into one of the rooms and started up a vulture, which crawled into one of the many holes and hissed at us, at the same time emitting a fetid odor. This apartment evidently led into another, and the Consul bravely explored the various dark retreats, but without succeeding in finding anything of value. Here was also the peculiar Maya arch, of ruder form than that of Uxmal, more nearly approaching the arch of Palenque, — the inner and overlapping stones not being dressed or bevelled; besides, there was a further departure, in alternate layers of stone and mortar, but with a cap, as in Uxmal, instead of a keystone.

In wandering through the pastures, we stumbled into a hole and were nearly precipitated into a yawning chasm, which further investigation showed to lead into a *cenote* about forty feet deep and ninety broad, with a little water in it. This was about midday, and the air outside was intensely hot, though in this cavern it was very cool and refreshing. We found here eight

THE GREAT KATUNES.

girls and women, seated on the rocks beside the water, braiding hemp. There was one extremely attractive, with light complexion and an intelligent face. They were not a whit curious, as negroes or white people would have been, but took our advent quietly, without a laugh or questioning glance. Indeed, these Mayas bear evidence by their deportment that they have descended from a polite and cultured race. They came here

to this damp cavern to braid their hemp, for use in simple articles of domestic manufacture, as the moist air facilitates the process.

We sat awhile in this strange reception hall, while our man went for some coco nuts, with the sweet water of which we slaked our thirst. A great number of lizards and iguanas were running about the ledges, and I shot several that seemed new to me. One was a hideous reptile of the saurian type, with twelve callosities on his legs, each one of which, our Indian said, meant a year. Another, which I also shot with my pistol, had a pointed tail, and the Maya was much excited when I went to pick it up from the rock where it was still struggling, saying that it would throw its tail at me as it expired, inflicting a poisonous wound. There was, he said, another lizard that would bite your shadow, as you crossed its path, causing you terrible pains in the head thereby. These Indians are full of superstitions, believing in witchcraft, in avenging spirits, and in ghosts, and endowing every kind of creeping thing with some supernatural attribute.

As the sun's rays glanced horizontally along the level fields, the mules were harnessed, and we returned to San Antonio, leaving behind us those grand, suggestive, yet mute memorials of a departed people; the oldest monuments — that is, of Indians who had approached civilization — that this new country can exhibit; the oldest, perhaps, in America.

V.

MAYAPAN, THE ANCIENT EMPIRE.

IN bringing to a close these desultory remarks upon the ruins of Yucatan, I am reminded that there yet remain two of the most important groups, Mayapan and Chichen-Itza, without which the hundred-mile radius around Merida would be incomplete. Mayapan, about thirty miles south of Merida, was the seat of the ancient Maya empire, and the city was called *El Pendon de los Mayas* — the banner city of the country — by the early Spanish writers on Yucatan. Here, in this ancient city, among the ruins of palaces once occupied by native kings, it would seem most fitting that we should review, though hastily, the aboriginal history of Yucatan, as it has been handed down to us. According to the Maya genesis, as interpreted by Spanish priests and monks, the Creator formed the first man of a handful of *sacate* (or grass) and earth; from the latter came his flesh and bones, and from the grass his skin and his comely appearance. Dwarfs and giants were the first people of this portion of the country, and the former, as usual, always got the better of the latter.

The most ancient traditions seem to point to two distinct immigrations into the peninsula; but it is usually conceded that there existed, in that portion of Central America where Yucatan, Guatemala, and Southern Mexico come together, a great and potent theocratic empire. This was in ages past. Successive immigrations, from the north and from the south, have swept over it, until all distinctive race individuality of the people who lived there has been obliterated. The capital city of this empire was Xibalba (*Hibalba*), thought to be the Palenque of the present day. The tribes coming down from the north, the Nahuatls, built another city, which they called Tula, or Tulhá, near the

present town of Ocosingo, in Chiapas. And if we may place credence in that perhaps mythical "sacred book" of the Quiches called the *Ah-Tza*, the *Itzaes* (*Ah Tzaes*), present inhabitants of Peten, are lineal descendants of the dwellers in Xibalba. Although traces of three distinct immigrations into Yucatan are evident, — the Itzaes, Mayas, and Caribs, — yet they all spoke one tongue, the Maya, at the coming of the Spaniards. The Itzaes founded cities in the northeastern portion of the peninsula, found in ruins to-day: Chichen-Itza, Itzamel, and T'ho, the site of the last occupied by the capital city of Merida.

In the fifth and sixth centuries the Mayas came, followed by the Tutul Xius. The former founded Mayapan, and the latter settled themselves in the region of which Uxmal is the centre. In the strifes that ensued between the Itzaes and Mayas, the latter attained to prominence and ruled the country, while the former retired to Chichen. The head of the ruling family was one Cocom, from whom descended the princes of Mayapan. The increasing importance of the Tutul Xius so alarmed the Maya ruler that he imported troops from Tabasco; but a century later the dreaded residents of Uxmal marched upon Mayapan, and, after a long and bloody struggle, razed it to the ground. About this time the Itzaes, who seem to have been of a more peaceful nature, abandoned their city of Chichen and buried themselves in the vast forests of Guatemala. We shall meet with them again. These events happened in the thirteenth and fourteenth centuries. In 1446, it is chronicled, King Cocom of Mayapan, with all his sons save one, was murdered by his nobles. Less than a century later the Spaniards became lords of the peninsula, and found Mayapan in ruins. It had been destroyed by the murderers of Cocom. Stephens, who visited Yucatan forty years ago, found among the ruins a great circular mound, and some sculptured stones, but of their origin and significance he was ignorant. It was left for another explorer, Dr. Augustus Le Plongeon, to complete the work of investigation. From his latest report to the American Antiquarian Society, — yet in manuscript when this was written, — the following details of his discoveries at Mayapan are gathered.

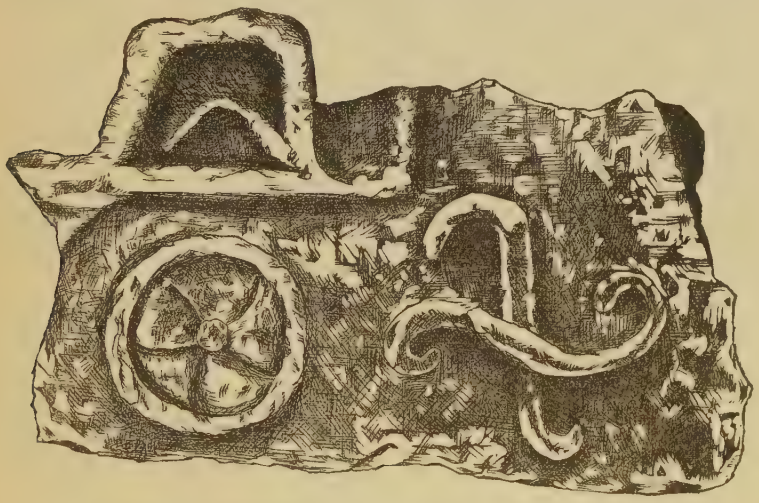
Among the ruins was found a stone, one of the two above mentioned, inscribed with characters. Of this a cast was taken, and sent to New York. The stone was one metre sixty-two centimetres high, and twenty-six centimetres wide. The inscription on it represents the king, Cocom, who was tributary to Chaacmol, king of Chichen-Itza, and whose portrait, full-length, is on the castle wall of Chichen. Dr. Le Plongeon writes: —

"Next we will meet him in the reception-room of Queen Kinich-Kakmo, the wife and sister of the great King Chaacmol. That king, Cocom, is the personage represented on the *anta* of the castle, in the bas-reliefs of the Queen's Chamber, at Chichen, and on the slab found by the Abbé Brasseur de Bourbourg, in Mayapan. One has only to look at his unique, unmistakable nose, his short stature, and towering hat, to become satisfied of the fact of his identity. And then his name, — it is symbolized by a little yellow flower, in some cases closed, in others open. In the Maya dictionary, *cocom* is a plant with yellow flowers, from the leaves of which, during the feast of Saint John, people make a kind of cigar. Cocom was the name of an ancient Maya dynasty, and is still preserved as an Indian family name among the natives of Yucatan. By the number of feathers in the cap of the king is indicated his exalted rank. The man before him holds a scroll, — and this is proven by Landa, that they had scrolls, written on large leaves, folded and enclosed between two boards.

When any of the ancient family of Cocom died, the principal lords cut off their heads and cooked them, in order to clean the meat from the bones, after which they sawed off the hind part of the skull, preserving the front with its jaws and teeth. They then replaced the flesh on the half-skull with a certain putty, giving them the same appearance they had when alive; they then placed them among their cinerary statues, which they had with their idols in their oratorios, and looked upon them with great reverence and love."

On the smaller slab the Doctor found, he says, inscriptions that his knowledge of the Maya tongue enabled him to translate, which were intended for the God of Fire, represented among the Mayas by the same hieroglyph that the Egyptians used for the Sun God, and by the emblems of one of the principal gods of the Assyrians. On the "Gnomon Mound" of Mayapan there

were found two *stelæ*, situated about one hundred metres from the southwest corner of the principal pyramid (named anciently Kukulcan), the first of the kind seen during a long and careful



"HIEROGLYPH OF THE GOD OF FIRE."

exploration of the ruined cities of Yucatan. Of them Dr. Le Plongeon says: —

"Following the detours of an obscure trail, we at last reached the foot of a small mound, eight metres high, eleven metres fifty centimetres wide at the base. The platform (on top), four metres seventy centimetres on the north and south sides by three metres on the east and west, sustained two perpendicular stelæ, forty-five centimetres in diameter and one metre high from the floor, which once was perfectly level and paved with beautifully hewn slabs of stone. To-day it is covered with ten centimetres of loam, the product of three centuries and a half of deposition. The distance between the centres of the stelæ is one metre seventy centimetres, their orientation as perfect as it could be done to-day with our improved instruments."

By careful measurements, Dr. Le Plongeon arrived at the conclusion that the ancient Mayas correctly calculated the true declination of the sun; and he adds that the Maya astronomers divided their astronomical year into twelve months of thirty days

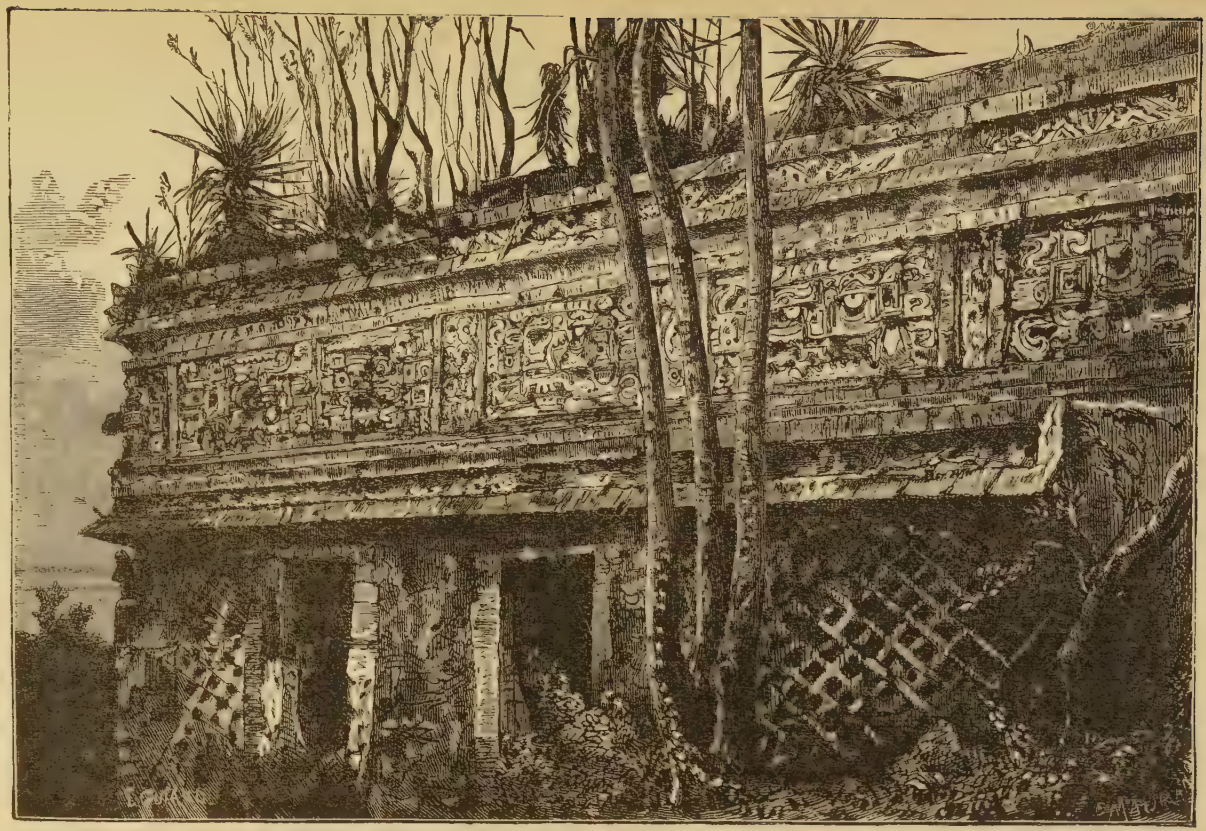
each, to which they added the five days when they said the sun was resting. "Here again we find another point of contact with the Egyptians and the Chaldeans." Of course, says the Doctor, by noticing the length of the shadows projected by the stelæ on the smooth floor of the platform, they could know the hour of the day; at night — as the Indians do even to-day — they could tell the time quite accurately by observing the courses of the stars. By placing a style, or any narrow object, on the top of the columns so as to rest on the centres, and noticing when its shadow fell perpendicularly on the platform, and covered exactly the line they had traced for that purpose between the stelæ, they knew when the sun passed their zenith, which phenomenon occurs twice every year, in March and July.

The Doctor remarks that he has adopted the use of the metric standard of linear measure as much from necessity as from choice, and from "the strange discovery that the metre is the only measure of dimension which agrees with that adopted by these most ancient artists and architects." The explorer continues: —

"We cannot suppose that the gnomon was built at random; that the diameter of the stelæ and the distance they are placed from one another are wholly fortuitous. . . . . Judging of past humanity by the present, we must of necessity agree that these diameters and this distance of the centres are the result of accurate calculations and knowledge. . . . . I have taken for granted that they knew when the sun had reached the tropics, and therefore its greatest declination, — 23° 27′, — because the days that the declination does not vary they called by a name signifying, according to Pio Perez,[1] the bed or place where the sun rests.

"To sum up: These builders seem to have taken as bases for their calculation the latitude of the place and the declination of the sun when at his resting-place, — as they called the solstitial points. That this manner of computing time was used by the primitive inhabitants of the great metropolis, Chichen-Itza, or by those who dwelt in it when at the height of its splendor, when scholars flocked from all parts of the world to consult its wise men, is more than at present we can positively know. . . . .

[1] "Maya Chronology," by Señor Don Juan Pio Perez, first published in the Appendix to Stephens's "Incidents of Travel in Yucatan."



NORTH FAÇADE OF NUN'S PALACE, CHICHEN.

"We know that in the most remote times they represented the Godhead under the symbol of the mastodon-head. Notwithstanding their great respect for the memory of their ancestors, so strongly inculcated that even to-day they would not fail to prepare the *hanal pixan* — the food of the souls — and offer it in peculiar places on All-Saints' day, in after ages this emblem — the mastodon-head — became replaced by that of the winged serpent, Kukulcan, or Ahi, even in the city of the holy and wise men, the Itzaes; whilst in Uxmal and other places, where in time the Nahautl religion prevailed, the phallic emblems were coupled with those of the sun, the fire, and the mastodon-head.

"The monuments of these people also show the changes which have taken place in the architectural taste in consequence of alteration in the customs and in the ideas and in the mode of life of the people, caused perhaps by immigrations and invasions, — probably by commercial intercourse and frequent communication by sea and land with the neighboring nations. The ornamentation of the edifices also tells us of the progress of the artists in drawing and sculpture.

"The great mound of Mayapan, which reveals such perfect mathematical symmetry in all its parts, shows that the Maya architects were as well acquainted with the rules of trigonometry as their friends the astronomers. It will call to mind that oldest structure of the plains of Chaldea, — the graduated towers so characteristic of Babylonia, of which the oldest type known in history is the tower of Babel, — and on its top the priests of the Mayas, as the Magi, elevated above the mists of the plain below, could track through the cloudless sky the movements of the stars; instead of cutting out there the hearts of human victims, as a celebrated author suggests. . . . .

"This mound, now very dilapidated, is an oblong, truncated pyramid, measuring on the north and west sides at the base thirty-two metres, and fourteen metres on top; on the east and west sides at the base twenty-seven metres, and ten metres on top. On the four faces stairways are cut of sixty steps, each twenty-five centimetres high; it appears as if composed of seven superposed platforms, all of the same height, — one metre seventy centimetres, — each one being smaller than the one immediately below. Throughout Yucatan seven seems to have been the mystic number, as among other ancient nations. In the plains of Babylon there were no stones, and the builders of the 'temple of the seven lights' made the core of the structure with sun-dried clay, and the facings with hard-burnt bricks. In Yucatan, where there is no clay, but stones, the core

is found of loose stones with blocks of the same material carefully hewn for the facing. The mode of building, however, was identical among the Mayas and the Chaldeans. Again, there is shown an identity of ideas in the artists who decorated the walls at Chichen-Itza and Babylon."

In his essay on the language of the Mayas, Dr. Le Plongeon stated that they employed many words and names common to all, or nearly all, the ancient languages of which we have knowledge; that they used letters and characters belonging to the most ancient Chaldaic alphabet; and their mode of writing, in squares, was similar to that of the Babylonians. He adds: —

"So also we see that their architecture partakes of that of the Egyptians and the Babylonians, besides having a style that belongs to none of these ancient nations. That they had 'perpendicular' pyramids, with their faces to the cardinal points, like the Egyptians, the mound of Mayapan proves. But the great mound situated on the north side of the principal square of Izamal, on the top of which used to be a temple dedicated to Kinich-Kakmo, the queen of Chichen, is an oblique pyramid, the very counterpart of the 'Temple of the Moon' at Mugheir."

The curious reader may find the gist of the preceding statements regarding the civilization of the Mayas in Landa's interesting book, *Relacion de las Cosas de Yucatan*. Even though we may not accept the conclusions of this intrepid explorer, "that the cradle of the world's civilization is this continent on which we live," we must assign to the Maya people an elevated rank among the civilized nations of the world, and great antiquity.

We might note, before leaving Mayapan, that, according to Cogolludo (an old historian, writing in 1655), all the nobles of the country had houses in that city before its destruction, and were exempted from tribute. But now, he says, "these nobles, the descendants of Tutul Xiu, who was the king and natural lord, if they do not work with their own hands, have nothing to eat."

Directly east of Merida, connected by a great high-road, is Izamal, the ancient Itzamal of the Itzaes, founded by them first of any city in the peninsula. Itzamna is the first person mentioned in the annals of the peninsula, a hero apotheosized,

and a great leader in the first Itza invasion. "In the centre of a region of waters" they built a city called Itzamal, and here they established the worship of Zamna, consisting of the offerings of flowers and fruit. To this religious centre flocked pilgrims by thousands, and it is thought that the gigantic head of stucco, to-day seen in the city of Izamal, was the object of their idolatry.

GIGANTIC HEAD.

The city itself is quiet, and a desirable place of residence. One of its other attractions is an immense mound, supposed to have been the foundation for an ancient temple; and a paved road is said to lead from this place to the ruins of Tulum. As early as 1549, the Indians, under Spanish guidance, erected here the celebrated monastery of San Antonio.

Continuing on from Izamal, bending our course southward, we shall eventually reach the attractive though unfortunate city of Valladolid, thirty-seven leagues distant from Merida. It is celebrated as the first city in which a cotton-mill was erected in Yucatan, in 1834, but has a melancholy interest from its almost complete destruction in the revolution of the Indians, in 1847.

This great uprising of the indigenous race had its origin in the period of independence, in 1821, when Mexico separated from Spain. In Yucatan, as in Mexico, the large landed proprietors were opposed to separation from the mother country, while the bulk of the population, who owned no property, were in favor of it. The question later arose of an amalgamation with Mexico, which gave rise to two parties, — for and against. Both invoked aid from the Indians, — the *raza indigena*, — and placed arms in their hands, and filled their ears with promises. After the struggle was over and the Mexicans expelled, the Indians were dismissed to their homes in the eastern portion of the peninsula. All the promises made them were evaded, and so they returned sullen and empty-handed — except that they kept the arms — and later used them!

In 1846 local politics ran high between the provinces of Merida and Campeche, and they came to blows. It was the Indians' opportunity; everywhere, in the east, there was a great uprising. The eastern coast was swept with fire and sword. Valladolid, a city of 12,000 inhabitants, and Tekax, with 5,000, were completely abandoned; and gradually all northern, eastern, and southeastern Yucatan seemed to be returning to its primitive owners. The indigenous people ravaged the country, burning, pillaging, murdering, until the whites were panic-stricken and fled towards the coast. The red men recollected the centuries of wrong they had endured, and vowed to wage against the white race a war of extermination. The Creole population of Yucatan appealed for aid to the United States, to Mexico, and to Spain. At last, Mexico, having concluded its war with the United States, sent succor, and very gradually the rebels — the *sublevados* — were driven back. But it was years

THE CARCEL, CHICHEN.

before the country breathed of peace, and even now thousands of square miles are desolate, and hundreds of towns lie in ruins. By this act of calling in aid from Mexico, Yucatan lost her autonomy, and soon after became one of the confederated states of the republic. Valladolid has never recovered from its terrible injuries; although, from its geographical position, and the vast unoccupied country of which it is the centre, it is destined to become again prosperous and populous.

Lying west from Valladolid, about thirty miles, is the largest, and next to Uxmal the most important, group of ruins in Yucatan, that of Chichen-Itza. The ruined structures occupy an area of about two miles, and a high-road passes near them. They are accurately described in various writings, so that I will not do more than enumerate them here. Of these ruins, the most magnificent pile is the "House of the Nuns," very rich in sculpture, while the "Carcel," or "Tower," is the grandest and most conspicuous object in Chichen. The "Gymnasium" contains great stone rings set in the wall, four feet in diameter, and with a sculptured border of serpents. The hieroglyphic carvings are wonderful and beautiful, and the mural paintings, representting warriors in battle and events in the lives of the various rulers of Chichen, are artistic in execution, and the finest that adorn the walls of any buildings yet discovered. A procession of lynxes, or tigers, adorns the cornice of one building, while sculptured slabs and pillars are scattered profusely over the ground.

This was the ancient capital of the Itzaes, after they had been driven from Itzamal and before they sought seclusion in Peten. Various attempts have been made to reconstruct their history, from the scattered fragments left by tradition and from the mural paintings and hieroglyphs, but as yet with little success. Although Stephens gives an exhaustive description of Chichen, yet Norman[1] claims to be the first visitor from a foreign country to describe it from personal observation. "No marks," he says, "of human footsteps, no signs of previous visitors, were discoverable; nor is there good reason to believe that any person, whose testimony of the past has been given to the world, had

[1] "Rambles in Yucatan," New York, 1843.

ever before broken the silence which reigns over these sacred tombs of a departed civilization."

It is known, however, that a portion of Montejo's army marched through here, and found the great buildings a secure defence against the assailing Indians, in the first invasion.

For seven years, that energetic archæologist, Le Plongeon, has studied the hieroglyphs of Yucatan. A linguist of no mean attainments, adding to a knowledge of modern languages an acquaintance with the Maya, the native tongue of the peninsula, he has had unusual success in his work. It is to him that the world owes the bringing to the light of the beautiful statue of Chaacmol, now in the Mexican Museum. This monolith, "Chaacmol, the Tiger-King," was unearthed by Dr. Le Plongeon at Chichen, in the midst of a dense forest, *eight metres below the surface;* — found by his powers of divination, the Indians say; but by his knowledge of the hieroglyphs, the Doctor says, on the walls of the near buildings. By almost superhuman exertions, the Doctor raised the great statue, which is over nine feet in length, from its burial-place, — the story of its exhumation reads like romance, but the *photographs*, taken at successive stages of the work, substantiate the narrative in every particular, —and transported it to what he thought was a place of safety.[1] Alas for his calculations, and for the scientists of the United States! While he was absent, exploring the islands of Cozumel and Mujeres, his precious discovery was seized by the Mexican government and carried to Mexico.

Of the mural paintings of Chichen, the most beautiful and unique in America, the Doctor and his wife have an extensive series of tracings, which I was fortunate enough to be allowed to examine in Merida. Chichen, though only one hundred miles from the capital, is considered rather unsafe at present, owing to its being within the territory of the unconquered Indians, and an escort of soldiers is needed for the last thirty miles of the journey, and while among the ruins.

[1] "The reports of his discoveries seem at first wellnigh fabulous, though their authenticity is so well attested as to leave no room for doubt." — John T. Short, "The North Americans of Antiquity."

It is to be hoped that, when Dr. Le Plongeon shall have completed his explorations, he will give to the world a connected account of his discoveries, embellished with his photographs and enlivened with the sparkling descriptions of his talented and devoted wife. At present, we are indebted to the American Antiquarian Society [1] for several valuable illustrated papers on these investigations, and especially to the scholarly editor, Mr. Stephen Salisbury, Jr., through whose liberality and unwearied exertions they were published.

The predominant character of these Maya structures, says the historian of Yucatan, Señor Ancona, is that all are built upon an artificial elevation; a pyramid or truncate cone supporting a building more or less vast and grand. The walls are generally of great thickness, many are faced on the exterior with carved stone, and many also present a rich profusion of adornments, sculptured in bas-relief upon their faces.

CHAACMOL.

Busts and human heads, figures of animals, and hieroglyphics — which nobody has yet been able to decipher — constitute in general these adornments. The finest workmanship is displayed in broad and elevated cornices; and the spectator does not know which most to admire in the artist, — the prodigious number of small pieces with which he composed the work, or the beauty and accuracy to nature of the scenes represented. The doors are generally low and the lintels of wood, some richly sculptured.

[1] For detailed descriptions see "The Mayas, the Sources of their History," 1877; "Maya Aachæology," 1879; etc. Proceedings of the American Antiquarian Society, Worcester, Mass.

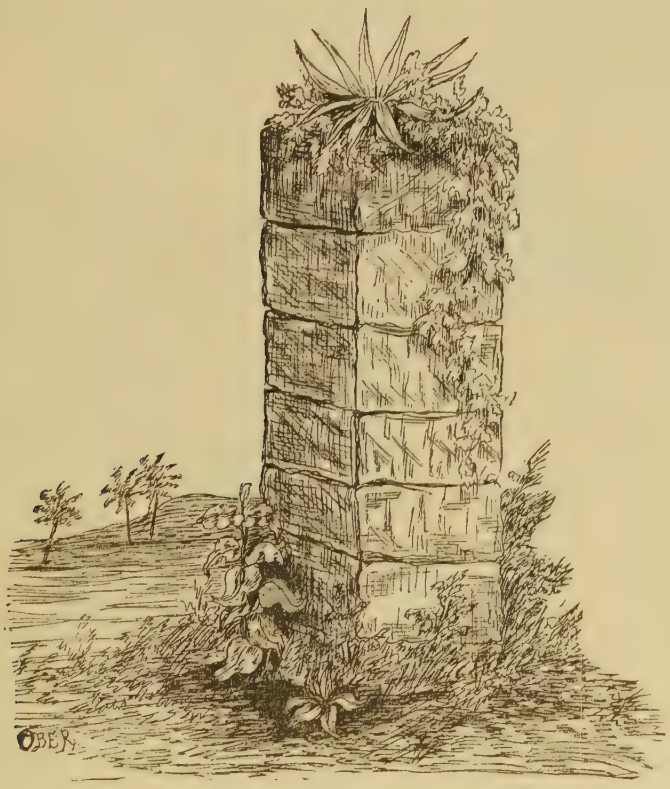
The ceiling is formed by the peculiar American arch, and owing to their construction not much breadth can be got, but great length.

Most of these ruined cities have remained in the silence and obscurity of the wildernesses in which they are immured, ever since the traveller Stephens visited them, more than forty years ago. Kabah, especially, has not had a white visitor, it is said, since that time, until within two years. In June, 1881, this group was visited by the United States Consul, Mr. Louis H. Aymé, his wife, and Mr. Porter C. Bliss, assistant editor of Johnson's Cyclopædia. Mr. Aymé is an enthusiastic explorer, who is indefatigable in his search after objects of interest to the antiquarians of America. Owing to his exertions, there was brought to light an object that had escaped the attention of all previous explorers. It was a rude painting of "a man mounted on horseback." This important discovery was made by Mr. Aymé on June 16th, 1881; and it gives me pleasure to chronicle such a "find" by such a genial gentleman, who was so helpful to me in Yucatan, and who, in company with Mr. Bliss, rode nearly a thousand miles with me, later, in Southern Mexico.

At a later period, Mr. Aymé again visited Kabah, this time in company with the distinguished archæologist, M. Désirée Charnay, who immediately pronounced it a wonderful discovery, and praised his companion highly. He, M. Charnay, declared it to be "a figure of a Spanish horseman, with his cuirass, and prancing on a fiery steed"; and claimed that his theory — that these ruins have not a great antiquity — was proved completely! Dr. Le Plongeon, however, who claims for the ruined cities of Yucatan that they were hoary with the weight of years when the Parthenon was built, would fain induce us to believe that this picture is a portrait of an ancient worthy named Can, who flourished many centuries agone. In fine, one archæologist "proves" from the same mural painting, that these ruins are less than one thousand years old, while the other is equally certain they have an antiquity of at least ten thousand years!

Readers of the North American Review for the past few years cannot fail to have noticed that M. Charnay started on his

explorations in Central America with preconceived notions as to the age and builders of these cities; and he has ingeniously twisted every discovery into a "proof" in favor of his pet theory; which unfortunate manner of working vitiates all the labor heretofore done.



A COLUMN AT AKÉ.

VI.

A GRAND TURKEY HUNT.

"With us ther was a Doctor of Physike,
In all this world ne was ther won him like
To speak of physike, and of surgerie."

IT was drawing near the close of my stay in Yucatan, and there was but a week remaining; but the Consul had planned one last trip into the country that should eclipse all previous expeditions. He promised to take me on a grand turkey hunt. The magnificent turkey of Yucatan, the *Meleagris ocellatus*, is found only there and in Honduras and Guatemala. It is the most beautiful of the whole family. Though there are three species in North America, one peculiar to the United States and another to Mexico, and though our species is the largest, the ocellated turkey of Yucatan surpasses them all in the metallic sheen and lustre of its plumage. It was to capture this glorious bird, then, that this final journey in Yucatan was undertaken.

At eleven o'clock at night, our *volan* drove up to the door, and the Consul, and John, myself, and another man, crawled into it and wedged ourselves together The reader does n't know John, but I do; and that is where I have the advantage of the reader. John was a dentist, one of the few practitioners of the bloody art of dentistry who could draw a tooth without gloating over the misery he caused. In token that we appreciated this manly quality of his gentle nature, we took him along to let him see us shoot turkeys.

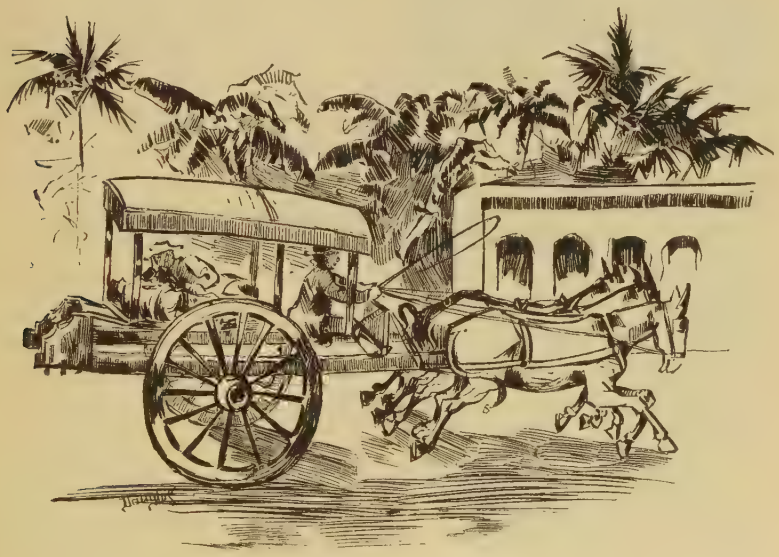
"*Alerta!*" the watch-cry of the sentinel pacing in front of the municipal palace, rang clear on the midnight air, as we climbed into our volan.

"Who goes there?" shouted another sentinel at the city gate, as we dashed beneath its arched portal and sped away into the country.

"*Amigos!*" was our reply, and, settling ourselves snugly on the mattress, we prepared for sleep.

We set out on our journey at midnight. The heat of day in Yucatan is so great that all travel is done by night.

"Now, José," said the Consul, "put the mules to their best, because we have sixty miles to do before to-morrow noon."



THE VOLAN-COCHÉ.

"*Si, señor,*" replied José, and then he stood out on the dash-board and plied the whip till the speeding mules were hidden in a cloud of dust.

Stretching ourselves on our bed, we almost immediately went to sleep, José's cries of "*Moola, moola! hoo, hoo, hoo!*" acting as a lullaby.

A volan is intended for only two persons, who lie extended upon the mattress, and take refreshing naps as they are driven

along. But we four had to double ourselves up, resting our chins on our knees; a revolver was pressed against my spine, a small bird-gun tangled up with my legs, and all the legs of our trousers crawled up above our knees, where they remained in uncomfortable wads. We finally got to sleep, however, leaving the driver whooping and yelling at the mules, just as we hove in sight of the white walls of a hacienda. Even though the position was uncomfortable, it was pleasant to reflect that the volan would be going all the time we were sleeping, and our journey of sixty miles would be so much shorter when we awoke.

It might have been three hours later that we were awakened by loud cursing and howling, and, looking out of the volan, saw Señor Acosta, our *compañero*, by the side of the road, thrashing the driver. Having walloped him to his heart's content, he crawled back among us and explained that, while we were indulging in a nap, the driver also had taken one; and, if we would look out, we should see the same hacienda that was in sight before we closed our eyes. This was discouraging, but we took it out of the mules and the driver, from there on, by taking watch and watch. At three in the morning we drove into the silent, deserted square of a village. All the houses were closed, of course, but the mules were taken out and given a refreshing change; that is, the inside mule was put on the outside. A long row of buildings was in front of us, and our driver commenced at one end and pounded at every door till he reached the farther end; then he began again and went down the whole row, till the last of them was opened. I inquired what was the matter, and, being told that one of the cart-wheels was twisted, supposed they were stopping for something to remedy the twist; but, after we all had been invited in and had a drink of *habanero*, we went on again, as before.

It was yet dark, though the road was fairly crowded with Indians going to Merida to market, some of whom had come from a distance of thirty or forty miles, staggering beneath heavy loads of grass, vegetables, and charcoal. Passing another volan, our driver raced with it, each man standing out on the shafts and encouraging the jaded mules with loud yells and

repeated applications of a raw-hide thong. We finally passed the other volan, but a sudden pulling up of the mules caused us all to look out, when we saw that we had run into a party of Indians, and unhorsed a woman, who picked herself up out of the dust and limped to the roadside, sullenly and without a word, while her terrified steed dashed away out of sight. Then we went on again, furiously, and at daylight were entering the street of an inland town called Motul, ten leagues from Merida. Already many people were in the street, and we entered a house and got a cup of chocolate, after which John and I visited the cathedral, built in 1651. The altar was nearly stripped of ornaments, but there yet remained two massive candelabra of solid silver.

RAMON SELLER (*Vendedor de Ramon*).

A mile from the plaza, we came to the famous *cenote* of Motul, one of those used by the aborigines of Yucatan. It is the deepest hereabouts, and the water can only be seen by looking down a deep well; but there is an entrance by a larger hole, through which you reach a great chamber, very dark and gloomy, and swarming with bats and lizards. Undressing in this chamber, you enter the water, the glimmer of which is visible by going in some ways, and swim towards the light, then, by diving under a ledge that falls from the roof above nearly to the surface, you find yourself in the circular opening some sixty feet beneath the surface of the earth. It is not a pleasant place to bathe in at all, but it is

cool and dark, and in refreshing contrast to the glare and heat outside.

A strange bird lives in these cenotes, called the "Toh," a species of *Momotus*. He is about a foot in length, with fine silky feathers and a very curious tail. It is formed of two long feathers, which are stripped nearly to their tip, only the naked shafts remaining.

A friend, Professor George Gaumer, who has spent two years in Yucatan, says that he has often found the cenotes swarming with alligators at times, when at others not one could be found. From this he very reasonably infers an underground connection with large bodies of water by subterranean rivers.

There is said to be a cenote in the town of Tabi, in the centre of which, at midday, when the sun is perpendicularly above the water, there appears the image of a most beautiful palm tree. Near Tikoh is another, into which, says Cogolludo, writing in 1655, if any one enters without holding his breath, he dies instantly; therefore, none are desirous of bathing in it. In breathing, or making any other noise, they say the commotion of the water is excessive, and that the noise poisons the water, and that it has caused the death of many Indians while drawing water from it.

Another writer mentions another cenote, one of the largest in the peninsula, in the centre of the public square of the village of Telchaquillo. At a distance "the square seemed level and unbroken; but women walking across with *cantaros*, or water-jars, on their heads, suddenly disappeared, and others seemed to rise up out of the earth."

There are many palm trees about Motul, and pawpaws, and other tropical plants. The flowers are profuse and beautiful, and the Mestiza girls as lovely as they can be. Yet we did not tarry long, but drove on, after a breakfast and a nap, through a fertile country of Sisal hemp and corn, to the next town. Driving rapidly over a good road, we entered the unending scrub plains of Yucatan. We passed a great many Indians, mostly women, and mostly more or less inebriated; not violently drunk, but enough to make them happy and smiling.

At two o'clock we drove into the large open square of Cansahcab, a neat little town, mostly of thatched houses, containing the best-preserved church and presbytery in the State. The meaning of the name of this town, which is Indian, is, that you may hunt a long time for water and not find it. This the Consul proved to be true, for he looked everywhere for a drink, but came back to us without having found it. As it was in the heat of the day, everybody was in his hammock, and every house was closed. Great flocks of blackbirds were in the square, the only living things in sight. The number of birds about these Indian villages, and their tameness, speak well for the gentle nature of the inhabitants.

Though we had but twelve miles farther to go, it would not do to pass through the town without seeing the head man; so we waited while he was sent for. After an hour, he came galloping in from his hacienda, — a large, good-looking, sensible man, of about fifty, in loose shirt, drawers, and sandals. He was delighted to see us, and ordered beer and refreshments at once, declared that we were going no farther that day, and turned our mules directly into his enclosure. This is the way they travel throughout Yucatan, — two or three hours on the road, and six or eight in drinking and chatting. Our host, General Theodosio Canto, was one of the famous men of the State. He has served a short term as Governor, and is the greatest man, the chief, of this portion of Yucatan. He has headed several revolutions, fighting long and obstinately. A long scar over his eye shows where he was terribly cut in one fight, when, also, his nose was nearly severed, and he was left on the field; yet he was out and fighting again two weeks afterward. He says that the blood he had in him then flowed out, and what he has now is all new.

The General told us that his town was seldom honored with such distinguished visitors as we, and that night he would give us a grand Mestiza ball. After an early dinner we went with the General and invited all the young ladies to the ball: the old ones and the men and boys were sure to come without asking. These young ladies had rather short notice, but then they had but little preparation to make, for they wear generally but two garments.

They have only to change the over and under skirt, dust a little powder over their arms and shoulders, dab a little rouge here and there, and hang on all the chains and jewelry they own, and then they are ready for anything.

At eight o'clock the village band came to escort us to the *Casa Municipal*, or the city hall, the corridor of which (one hundred feet long) had been swept, and decorated with palm branches. A great throng followed us, letting off rockets and fire-crackers, and in this way we were escorted to the scene of festivity. As we arrived, the crowd about the *portales* parted right and left, and we were conducted to the seats of honor. The sight that greeted our eyes nearly took our breath away; for there, ranged in chairs along the wall, was a row of the prettiest Mestiza girls we had ever seen. They were dressed in their becoming costume of snowy white, and some of them fairly glittering in gold chains and ornaments. The ancient national costume of the Mayas, from whom these Indians are descended, was, for the women, two skirts of fine white linen: the under skirt reaches from the waist to the ground, and is called *pic;* the upper, called *uipil*, falls from the shoulders, over the lower, to the knees. These are embroidered in gay colors, and often edged with lace. According to an ancient law, there should be no button or fastening on the uipil, and it is cut square, very low in the neck and back, so that it can be slipped over the head, and worn without any fastening. As a race, these people are symmetrically shaped, and the loose dress of the females sets off their beautiful shoulders to great advantage. About fifty of these lovely damsels sat awaiting our arrival. From among these the General, John, and the Consul selected partners, and were soon treading the light fantastic toe. I did not dance, and sat solitary in a secluded corner, enjoying the bright scene: the long, broad corridor lit with torches, the dark masses of Indians hemming us in, and the *señoritas* and *caballeros* in their gay costumes.

An old man, who had fixed his eyes on me some time previously, approached and asked me if I would not sit by his daughter and talk English to her. She was a sweet, blooming damsel,

fair to look upon, in sooth, and I had not the heart to refuse such a reasonable request; so I went as directed, and opened a conversation.

MESTIZA AND MESTIZO.

Soon I noticed that, though she paid the closest attention, and nodded her pretty head and winked her lovely eyes at intervals, still she made no replies, save *Si*, *señor*, and *No*, *señor*, and not always bringing these in at the right place. Then

it dawned upon me that my aged friend was playing a game on me by getting me to talk English to a girl who did n't understand one word of the language. But when I expostulated with him, he replied, innocently and in good faith, that his daughter could not speak English certainly, and, moreover, she had never heard it spoken before, nor had any other of the young ladies in the room; but he hoped I would not refuse to gratify her curiosity to hear it. And just then the blushing beauty smiled bewitchingly, and said that she understood my English very well, and that the old man could just go along about his business, or words to that effect.

Well, we talked English together for quite a while, though it was a rather one-sided conversation, for she could only understand Spanish and Maya. Pretty soon the other girls wanted to talk English, too, and grew so anxious that the dancing was entirely suspended. As there were only three of us, and not enough to go round if but one young lady were assigned to each, it was proposed by the General that we make speeches in English. This was not so agreeable a method as taking each damsel separately and conversing to her in private; but we consented, and it fell to my lot to lead off. Now, not a mother's son, or daughter, of that assemblage could understand a syllable of anything but Spanish and Maya, and I am ashamed to confess that I presumed upon their ignorance in a way that was not fair. I recited, "The boy stood on the burning deck"; and when the Consul assured them it was a beautiful English poem, my own composition, they believed him, and applauded furiously. Then the Consul and John made speeches, the former passing off something of Daniel Webster's as an original oration, and when we were through it was midnight. Refreshments were then brought in, and, after toasting the bright eyes, etc. of the Yucatecas, we all departed for our respective dwellings.

On the morrow the General insisted upon going with us to the end of our journey, and so had his private volan hitched up, and about nine o'clock we reached our destination. In this town of Timax (pronounced Teemash) we found the only American in this section, in response to whose invitation we

had undertaken this sixty-mile ride. He was a naturalist, who, after spending some time in Cuba, had now been two years or more in Yucatan. Tired of living entirely in the woods, where he had collected every known bug, bird, and beast, he had at last settled in this remote town, and was now practising as a physician. As he was the only one in these parts, he had a very profitable practice, though his only authority was a "Warren's Household Physician." In truth, his entire curriculum embraced no more than he had grubbed in a few months from between the lids of that book. Yet he was as successful as physicians who have had the advantage of colleges and medical schools, and could manage to kill almost as many as they could, even with their improved methods and medicines. He then had a practice of fifty dollars a week, and usually lost not more than half his patients. We did not find the Doctor in, but we took possession of his house and hammocks, and when he returned were very much at home. He was extremely delighted to see us, not having had a chance to speak his native tongue for several months.

He it was who was to conduct us to the haunts of the wild turkey, and we put all our guns in order, and were anxious to start at once. The report of a cannon startled us and made our cheeks turn pale, for that was a signal that the indefatigable General had organized and ordered another ball. As it was to be given in our honor, we could not well avoid attending, and thus the turkey hunt must be postponed. This was to be a grand affair, — what the negroes would call a "dignity ball," — and the ladies who attended wore pure white, and were elegantly attired, while the gentlemen were in faultless evening dress. The *jefe politico*, or mayor of the town, had all the streets swept and cleaned, and the *Casa Municipal* decorated, and sent us a courteous invitation to attend, couched in elegant Spanish. A great crowd of Mestizos and Mestizas surrounded the side and two ends of the corridor, and gazed upon the aristocratic dancers with whom they were not allowed to mingle. The old General excited our curiosity by not appearing during the afternoon and early evening, but towards nine o'clock he

came out "fresh as a daisy," saying he had been sleeping, and at once marched on to the floor, demanded the prettiest girl there for a partner, got her, and led the dance. The ball ended at one o'clock in the morning, and then the General saw us home, and kept our medical friend up all night, during which time he severely punished nineteen bottles of beer, one after the other. "To-night," said he, as we parted from him at dawn, "you 're going to see something; I 'm going to get up the grandest fandango Timax ever had." Hearing this, we despaired of our turkey hunt entirely, as we were obliged to return to Merida two days later, or lose the steamer of that week for Mexico.

The General was as good as his word. At dark the *musicos* — musicians — came for us, headed by our friend, whom all the Indians and Mestizos of that section blindly worshipped. The musicos were clad in cotton drawers and shirts only, with high-crowned straw hats; but they played as sweetly as if all were graduates from a musical college, and cost only fifty cents a head. The soul of the native-born Mexican and Yucateco takes as naturally to music as a woodchuck to clover; he twangs the guitar and blows the dulcet horn as perfectly as he dances, and he commences both immediately he leaves the cradle. The President and Chief Judge carried round some of the invitations. When we reached the *Casa* the General was seated in his robe of state, — a flowing *camisa*, — and smiled benignantly over everybody and everything. The same dazzling array of beautiful, jewel-bedecked Mestiza girls beamed upon us this evening as at the first *baile*, and soon all my friends were busy filling their books for the dances. There was no prescribed style of dress for the men: some wore their linen outside, fluttering in the evening air, some wore it inside, and some of the more aristocratic even wore coats, but all wore their hats.

Unobserved, in a corner, I was watching the strange costumes with keen relish, when the sharp eye of the General espied me, from his chair of state, beneath his own portrait draped in Mexican colors. "Hi, Señor Federico! why are you not dancing?"

"Señor General, I don't know how."

"Yes you do; you 've got to dance, any way." With that he approached me, and, when I tried to dart through the crowd, caught and led me sternly back. "Here," beckoning to a lovely girl, "come, my darling, and dance with *el señor extranjero*."

The girl came and stood in front of me.

"That is my niece, the prettiest girl in the room, and the best dancer in the *canton*. Take her, now, and the Lord help you."

My explanations and protestations that I never danced were of no avail. He only repeated, "There 's my niece; look at her!"

True enough, there she was, waiting for me to take her out. O, she was a handsome girl! with regular features, shapely shoulders, and hung all around with gold ornaments. Though she could not understand a word of my language, she must have seen that I did not want to dance with her; but when the music struck up she merely smiled, and said, in the sweetest of tones, "*Vamonos!*"

"THE PRETTIEST GIRL IN THE ROOM."

Vamonos[1] means "Come along!" but I would not go. Perplexed and confused, I stood there trying to frame an adequate answer from a somewhat limited Spanish vocabulary. At last I had it. "*Señorita*," I began, "*yo no sé* this kind of a dance, you see; it 's all Greek to me. A Virginia reel, now, or a sailor's hornpipe, for instance; *pero este baile* —"

[1] *Vamonos* is purely colloquial, answering to the imperative of the verb *Ir*.

That precious sentence of Hispano-English was never finished, for she advanced at that, seized me about the waist, and said, in a decided sort of manner, "*Vamonos!*" — and I went.

Well, that young lady sailed all about me, like a swan. While I hopped up and down, stepped on her skirt, and trod on her toes, she remained as serene as a summer sky, pulled me this way and that, whirled me round and round till I was giddy, and ended by flinging me into a seat; while the whole audience, who had remained thunder-struck with awe and amazement at my war-dance, burst into loud cries of "*Viva Americano!*"

The girls sat ranged all along the wall, and waited till a caballero waltzed up to them and snatched one away. That was considered the proper thing to do, — when you saw a girl you wanted, to go up and lift her off her seat. Seeing that I was slow in coming forward, they reversed the order of things, and, before I was well aware, I was spinning away with another lady. One of the dances was the *toro*, or bull-dance; and another, the *zopilote*, or turkey-buzzard dance, in which a man and woman take the floor, each with a handkerchief, and go through a very extraordinary performance.

About midnight the Doctor looked in, on his way to visit a dying patient, and, wishing to see a new phase of native life, I went with him. Entering the thatched pole-hut of a poor Indian, we found ourselves in a dark room, feebly lighted by a small candle. It was a decided contrast to the bright ball-room, this gloomy and miserable hut, the abode of poverty and pain. In a hammock lay an Indian woman, the death-damp already gathering on her forehead, and a group of other women kneeling despairingly before a picture of the Virgin. Three hammocks hung from the smoke-blackened rafters, and these, with a few rude cooking utensils, were all the furniture of this cheerless abode.

The Doctor told them of her condition, and the information was communicated to the dying one, who changed neither position nor expression. Doubtless, she was glad to escape from a life that offered nothing but drudgery and toil; for these Indians have no fear of death, always welcoming

it, and rejoicing rather than mourning over the departure of a friend.

Out in the night air it was cool, bright, and pleasant, for a norther had just passed over. As we reached the corridor, the ball was just breaking up, and toasts were being drunk, to Mexico and the United States, to the señoritas and ourselves. Good feeling pervaded us all, and we parted from these kind and unsophisticated people with great regret, the band of musicos escorting us to the Doctor's house with lively music, and amid *vivas* for the two republics.

A YUCATAN CUISINE.

VII.

IN THE LOGWOOD FORESTS.

AFTER the last ball, the good General insisted upon staying and ascertaining the quality of the remainder of the Doctor's three dozen of beer; and at three A. M., seeing that it was likely to be an all-night session, I crept into the kitchen and took possession of one of the hammocks. This kitchen was the usual structure devoted to that use in Yucatan, of loose poles driven into the ground, forming a square pen, topped by a roof of thatch. Lorenzo Acosta, who owned the house the Doctor hired, and who piloted me to this retreat, had a rancho in the logwood district, which he invited me to visit, promising plenty of flamingoes and wild turkeys. We were to start early in the morning, before the Consul and John would be stirring, and, as the ride was to be a long one, had made good our escape from the General in order to gain a few hours' sleep. Two old women and a boy occupied this apartment, but the latter was unceremoniously ejected from one of the hammocks, which Lorenzo and I appropriated.

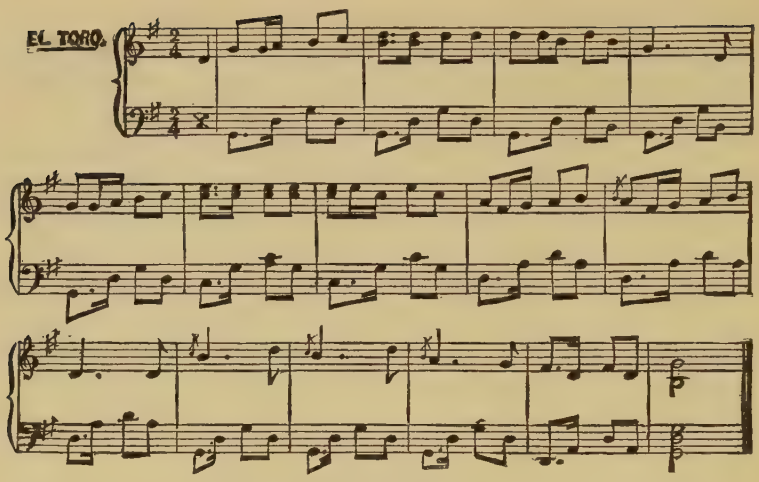
Perhaps the reader is not acquainted with the Yucatan way of sleeping, two in a hammock, and I will proceed to enlighten him. As the first one lies down in the hammock, he carefully takes up only one half, measured longitudinally, leaving the remainder for his friend. This the latter occupies, with his feet toward and parallel with the other's head, so that the two are packed "heads and points," like sardines. This leaves a kind of partition between the sleepers which effectually separates them; though, if one is inclined to kick in his sleep, the other must guard well his nose. In any event, a person at all fastidious might object to this style of packing, and prefer sleeping

family fashion, crosswise the hammock. But when one abandons himself to the guidance of a stranger, upon whose hospitality he is dependent, he must promptly check any qualms of his sensitive soul, and be duly grateful for what he can get.

It was so cold that I awoke several times during the brief space we occupied the hammock, and tried to remember that this was what they term the "hot" season. From the great flat surface of rock exposed to the rays of a powerful sun during the day in Yucatan, and the extremely rapid radiation at night, a degree of cold is sometimes reached that produces nocturnal freezing. During the hot, dry season, the cool nights are in most delightful contrast to the heated atmosphere of day, and induce sweet slumber, if one is properly guarded from extremes of temperature.

At about seven in the morning we were off for the logwood camp, by the way of the town of Ɔilam. This inverted C, with which Ɔilam is spelled, is a necessity arising from the retention of the ancient Maya names, and has the power of Ts, the word, consequently, being pronounced Tsilam. Don Alonzo could speak excellent Spanish, but what availed that to me when I was but in my first lessons in that language? He could not speak English, but he had a new "Ollendorff," and with this and my "conversation-book" in our hands, we rode through the cool woods, startling the birds with our blunders, and laughing at our many mistakes.

After an easy ride of four short leagues we arrived at Ɔilam, entering its principal street between low, white-walled houses. Going to a house near the great square, we tied our horses, and I paid the man who brought my luggage two reals — twenty-five cents — for his services, and four reals for the horse, and he returned to Timax. We were provided with breakfast in a *tienda*, — a shop, — and while we were eating, the proprietor played the *Toro* for us on a guitar. After a siesta in a hammock, drowsily watching a girl of graceful figure, clad only in a snowy uipil, combing for an hour her abundant tresses, I was taken out and introduced to the Presidente as the "learned naturalist, author, and discoverer, Señor Don Federico."



MUSIC OF THE TORO.

By him I was promised seven Indians, with whom to make an excavation in the great mound. I should explain here, that Oilam is celebrated for its great aboriginal mound, four hundred feet in length and fifty in height. This occupies one side of the great plaza of the town, and towers above the church and principal buildings, which were all built of stone from its ruins. It was visited by Stephens, and carelessly examined by him, a somewhat fanciful sketch of it being given in his second volume on Yucatan. He attached great importance to it as being the centre of a population at the time of the first visit of the Spaniards, quoting Herrera in confirmation that it was then "a fine Town, the Lord whereof was a youth of the Race of the Cheles, then a Christian, and a great Friend to Captain Francis de Montejo, who received and entertained them."

From the summit of this mound the country for leagues around can be seen, and the eye ranges over a vast extent of scrub, with no village in sight but the one about its base. A second mound lies north of this one, running east and west, while this larger and contiguous one has its longer axis north and south. The limits of these great tumuli once greatly exceeded their present area, as dressed stones can be seen in the streets, in

position, which run out into the scrub for a great distance. Under guidance of Don Juan we climbed the smaller mound, and some little boys commenced to throw out the dirt and stones from a small hole in the top. They soon brought out fragments of pottery and plaster, the former finely glazed and tinted, the plaster colored bright red, drab, and green, and all the tints fresh as if put on but yesterday. After the adult Indians arrived, more plaster was exhumed, and a room disclosed filled with *débris* from above. It proved to be arched, in a way similar to the "Akabná," at Aké. They opened it sufficiently to show its shape, but did not find any more pottery or plaster, which was evidently above and outside the building. So I caused the earth to be removed from the top, and soon revealed great pieces of stucco, showing bright colors and elaborate ornamentation and design; but not enough to satisfy me, though I was obliged to desist digging before finding much, as the sun was setting. Its last rays shone directly into the chamber we had opened. Half the men and boys of the village were gathered by this time, and all assisted eagerly at the work, even the Presidente and the schoolmaster. I paid the Indians a real apiece, and the boys a medio, and all were delighted. The ruins of a building upon this mound would seem to indicate the use of these vast accumulations of earth as foundations for palaces or temples. In a flat country, like Yucatan, it would be necessary to elevate the public buildings in this manner in order that they could be seen from a distance. Though the ruinous state of the structure was so complete that no satisfactory outline could be obtained, its stones covering all sides of the mound, and large trees and agaves growing upon the summit, yet it seemed to have been composed of successive platforms, each one covered with a thick layer of cement or plaster. Stephens did not visit it, but states that the padre, a young man of thirty (when he was there, forty years ago), remembered when a building still remained "with open doorways, pillars in them, and a corridor all around," and was called *El Castillo*, — the castle.

It should be remembered that Dilam, though leagues away, is the only port of the large town of Izamal, where there

is an immense mound and a gigantic sculptured head, and a road leads straight from the coast, through Timax, to that aboriginal city.

Alonzo and I occupied a hammock in a large, empty building belonging to Don Juan, and slept again *à la Yucateca*, the feet of each in close proximity to the other's head, which is almost as compact a style as that denominated "spoon fashion." We were to start at four the next morning, but did not rise till five; and though I expected to get on our journey by sunrise, it was nine o'clock before we left the town. This might have been expected, for the day before it was to have been *muy temprano*, — very early, — and we left Timax three hours behind time. No one was stirring in the plaza, but a baker's shop was open, with the usual knot of men in cotton pants, shivering in their sarapes; and here we got a cup of chocolate. While waiting for my horse, we visited the old churchyard, a walled-off corner, with orange trees in it. It must have been formerly used as a cemetery, for there were heaps of boxes — wine cases, brandy and soap boxes — full of dead men's bones; and in a recess in the church wall were arm and leg bones, and grinning skulls, that seemed inclined to dispute our entrance. Don Juan took us to see an old stone, with a strange inscription on it: probably, as he said, the work of Indians under Spanish direction; and he held up a wooden cross while we removed from it the boxes of bones.

Having thus been cheerfully fortified for the journey, I thought Alonzo would start; but he lingered here and there, buying meat and bread, till eight o'clock; then we mounted our horses, bade our friends "*Adios*," and rode down the street to a hut, where he asked for breakfast. This consumed another hour, though the Mestiza girl worked hard to prepare it for us, being hindered by the admiring and amorous Alonzo, who haunted the kitchen, teasing the pretty cook for a caress. Her mother, a wrinkled old lady, learning that I could not speak Spanish, pulled a dolorous countenance and called me *pobrecito*, — poor little fellow, — and wanted to know where in the world I lived, that the people could not speak "Castellano."

We finally got fairly astride our steeds at the cross of San José, near a big ceibo tree, and turned into a narrow trail that was, its whole length, very stony, or *muy pedragoso*. This led into the forest forming part of the belt that lines the eastern and northern coasts of Yucatan, the trees gradually increasing in size, and becoming more open as we advanced. Birds grew more numerous, especially the queer bird called the road-runner, — *el corre-camino*, — a species of cuckoo, or the chaparral cock. We had to walk our horses, the road was so slippery; very little soil covered the coral rock, which was full of holes, caves, and cenotes, nearly all leading to water. At noon we halted at a small cenote, where there was an opening in the rock, down which our Indian went, and got a calabash full of pure water. A team of pack mules came up just then, and their owner sat down with us and joined in a *refresco Yucateco*. Into the calabash of water Alonzo put a big ball of *atole*, or mixture of corn, procured of the Mestiza in the morning, and stirred it up with his fingers. When of proper consistency it was passed to me, and, drinking of it, I found it sweet and refreshing. This is prepared by the women, of maize, spiced and sweetened, and is in universal use in Yucatan and Southern Mexico, forming, with water, a pleasant and strengthening drink. We drank all around from the same calabash, then mounted and went on again. The great woods were open at times, sweet, clean, and inviting, and the leaves lay on the ground as in autumn in the North; but I had no relish for this sight, desiring to reach the end of a ride that promised to be interminable.

Late in the afternoon, we reached a change in the dry, hot road, an *aguada*, or small pond; and here, at a sign from Alonzo, I got off my horse and crept toward the water with my gun. Through the bushes I saw a gallinule, a beautiful bird, which I shot, and immediately after another, that flew up at the report of the gun. These Alonzo secured by wading into the dark pool, notwithstanding he had sore feet, as our Indian, though bare-legged, refused to secure them. The aguada was deep, its surface well covered with lilies and water plants, and fringed with an abundance of dead snail shells.

My friend had hitherto ridden perched upon two packs of luggage, and I had used his horse, while the Indian carried a great load on his back, supported by a band passing across his forehead. We both dismounted here and pursued the rest

OUR INDIAN PORTER.

of our way on foot; and I shot a *chachalalka*, a kind of pheasant, and from a little gem of an aguada we put up three large ducks. The gallinules, Alonzo tells me, are *pajaros preciosos*, or very precious birds; and they are, indeed, a rare

species, and a valuable addition to my collection. The whole character of the forest changed after this; the aguadas were more frequent, and the entire country appeared as though at times submerged. Of this, in fact, my friend assured me, adding that, when he came here, in June, the place where he had his camp, now dry land, was entirely under water.

I was very weary when we at last reached a meadow, in which some horses were feeding, and was told that we were near the rancho. To my great surprise my friend's *rancho* — from the name of which I was led to expect a small farm — proved to be nothing more than a collection of four huts of palmetto leaves, merely roofs to shed the rain, with open ends and sides. They were on the southern rim of a lovely aguada, surrounded by palmetto and deciduous trees. A pile of logwood, thatched with leaves, a bath-house of palm leaves, and a leaf roof over some hollow logs that served as beehives, completed the establishment.

On the road we had met a train of mules, each with a great plank, fifteen feet long and two wide, lashed on each side, one end projecting beyond his ears, the other dragging on the ground. This is the only way in which Western Yucatan can get its timber, all the west and central portion being covered with scrub or second growth.

About twenty Indians and Mestizos, with bare bodies and legs, sandals, and great cutlasses, were lounging about as we rode in. Three Indian women and a comely Mestiza were busy about their household duties. Upon a large plank, three feet wide, supported on four legs, were two *metates*, with rollers, used for grinding corn for tortillas; and in addition to this there were a few tubs, a grindstone, and all the things necessary to a camp in the forest. From pole to pole, under the thatched roofs of the open huts, were stretched hammocks of Sisal hemp, and two great mosquito bars told their own tale of insects at night.

We rode into this logwood camp, and I was invited to a hammock, while they talked over news and business, for Alonzo had been gone some time. I noticed one man, a Mestizo, who

had an uneasy look, and one woman, a Mestiza, who was comely and had an anxious look, though a very sympathetic one, — as they say here, *muy simpatica*. Of the other women, one was fat and restless, and the other old and honest. They all worked well, not intermitting their labors for a minute. Supper was soon ready. After the fashion of the country, we first washed our hands in a calabash, and five minutes later that same calabash was brought in full of water to drink. Poor Alonzo had but two bowls besides calabashes, for he was only camping, and had no knife, fork, or spoon; so I took my jack-knife, while they ate with fingers and tortillas. Tortillas and frijoles (beans) are the main stay of a Mexican cuisine. Upon the tortillas, as plates, you spread the beans, and with another corn cake, rolled up in shape of a spoon, you scoop in the frijoles. When the latter are finished, you eat the spoon, and then the plate, leaving no troublesome dishes to bother the cook.

Our companion was a Spaniard, lately from Europe, a pleasant, black-eyed young man, who was sent by a firm there to look after their interests in the logwood. There were no chairs, of course, and we sat in hammocks, while the food was placed on a box on a clean cloth. As we ate, more tortillas were brought, hot from the fire, handed to us on a cloth by the cook, and taken by us and clapped down on the table. Quite a pile was heaped up before we left, and these were taken and warmed over for the men. After eating, a calabash was passed around, full of water, for rinsing the mouth. The proper way is to fill the mouth with water, and, after inserting the finger and scrubbing the teeth, to spit it out. This custom prevails throughout Mexico, even among well-to-do people. Coffee and cigarettes then followed; the latter, in fact, were going all the time. By this time darkness had settled down, and some of the men retired to their hammocks. Though surrounded by strangers, and some with not very pleasant faces, I left all my arms outside the mosquito bar as I retired, conscious that they, as well as myself, were safe. Later in the season, in the highlands of Mexico, I would have sooner slept without my blanket than without my revolver;

for the Aztecs are as treacherous and faithless as the people of Yucatan are honest and true.

After a second coffee we all sought our hammocks, where Alonzo and I reclined, smoking and chatting. I was anxious to go on to the coast for flamingoes, but my host told me I could not, — that I was at his disposal; which remark rather irritated me, until he added, with a smile, "And I am at yours, also." I had got accustomed to this polite insincerity, however. On the way I asked him if the horse he rode was his, and he replied: "*Si, señor, y de usted, tambien*," — "Yes, sir, and yours as well." After that I ventured but one more question of the kind, and that was when, in the house of the young lady who had prepared our breakfast, I asked if she was his sweetheart. The customary reply came readily to his lips: "*Si, amigo mio*, and yours also."

I fell asleep, as soon as the insects feasting on me, ticks, sand-flies, fleas, and chinches, would permit, but soon awoke suddenly, conscious that Alonzo had darted out from under the mosquito bar and was in angry expostulation with the man with the evil eyes. This man, early in the evening, had gone raving to his hammock, and after crying there awhile he had come tearing out, and seized his wife, — the sympathetic one, — dragging her away from her work. She had submitted, though expecting a beating, merely glancing at her torn uipil; but one of the men jumped at him as he drew her along, and quieted him for a while. Now he had broken out afresh, threatening to kill Alonzo if he did not immediately pay him his wages, and brandishing a great machete furiously. Alonzo was in no wise frightened, but sprang at him like a jaguar, promising him a beating that would answer for his wages. And I have no doubt the Indian would have got it, though my friend is a little man, for in Oilam he had flown at a man who talked insolently to him, slapped his face, and pounded him well, until he ceased from talking. So they had it out in talk, and piled fresh fuel on the fire as though they intended to be at it all night, making my hut as light as day. The fight ended, Alonzo quietly entered the mosquito bar, which was made large enough for

both our hammocks, and ordered coffee and cigarettes for two. When he had asked me to enter, he had said, in Maya, "*Kom in*," which is the equivalent in that language for "Come in." There are also other words similar in sound and signification to ours. In the morning, after coffee and cigarettes, we all went into the woods to inspect the logwood — the *palo tinto* or *palo de Campeche* — which the men had cut during Acosta's absence. It was then very hot, though the night had been freezing cold.

The wood they had cut lay in little heaps where they had felled the trees. It was trimmed of all the bark and white outer wood, and was in color from light red to dark purple. One of the men had a steelyard with him, and this was hung from a tree, and the wood, piled on a suspended platform, was weighed, four *arrobas*, or one hundred pounds, at a time. This was noted down, with the name of the man who cut it, and we passed on to the next, being engaged in this way several hours. The horses were then led up, and a load of four arrobas packed on each, and carried to the camp.

The logwood tree, *Hæmatoxylon Campechianum*, is found bordering all the great lagoons and a good portion of the sea-coast of Southern Mexico. Campeche especially — a name which this tree bears as its specific appellation — exports vast quantities. It is a tree of medium size and peculiar appearance, attaining a height of twenty or thirty feet. The trunk is gnarled and full of cavities, and separates a short distance above the ground; the leaves are pinnated, the flowers small and yellowish, hanging in bunches from the ends of the branches. The bark is dark, while the sap-wood is yellowish, and the heart, the valuable portion, deep red. The logwood forests are nearly all flooded in the rainy season, though the tree is found in the hills as well as on the plains. It is in the dry season that the cutting begins, and in the rainy season the wood is floated to the *embarcaderos*, or wharves, on the rivers and lagoons, and thence to the ports to be laden in foreign vessels.

Many other valuable woods are found in Yucatan, including the mastic (*Pistacia lentiscus*), and dye-woods and dyeing

plants, such as the archil (*Rocella tinctoria*) and madder (*Rubia tinctorium*).

The sun was blazing hot, butterflies played about us, birds sang in the thin-foliaged trees, and a native quail, or *faisan*, got up at intervals. We saw one deer, *venado*, and one turkey, *pavo del monte*, but not near enough for a fair shot. There were many caves and depressions in the limestone surface, with water in them, looking cool and inviting for a bath; but numerous adders swimming across the water rendered them less attractive. Thousands of dead snails lay in windrows, but not a live one was to be found, though I searched diligently under the dead logs and leaves.

The logwood was brought into camp and stacked, whence it will be carried to the port of Ɔilam and shipped. There seem to be vast quantities of it, but it is in remote sections, where it is difficult and expensive to get it out. As we returned to camp, my friend was taken with cramp in the stomach, and howled and cried, and the man with whom he had quarrelled in the morning was the first to hasten to his aid. I suspected then it was but a ruse to bring about a change of sentiment through sympathy. In the evening Alonzo brought out a big bag of silver which he had brought to pay the men with, and proceeded to devote it to that purpose. I admired the pluck of my little friend, that would not let him be browbeaten into paying it out before he was ready, though in apparent danger from the Indian with the bad-looking eyes. We walked out in the cool of the evening toward the aguadas, or ponds; the birds were still, and a quiet brooded over the lonely place, except for the cries of the gallinules in the marsh, one of which Alonzo shot, and waded into the water waist-deep to secure it. Sometimes the simplest thing will awaken thoughts of home when in a strange country where the scenery is different; and mine were carried back to the North by the sight of a group of cat-tail flags, growing as in Northern meadows.

The industry of the Indian women of Yucatan is a matter of wonder. From long before daylight till late at night, even after we had retired to our rest, they were toiling at the metates. It

is the most laborious of occupations, to work the stone roller over a smooth slab of stone all day long. I saw two girls in Timax who worked twelve hours a day at the metates, grinding castor beans, for which they received *eighteen cents* per day. Our women were kept employed unusually late that night, in cooking up a store of tortillas for our journey next day, for we were to go to the coast for flamingoes.

LA TORTILLERA.

VIII.

NORTH COAST OF YUCATAN.

THE glassy surface of the aguada, soon after dawn, reflected the rosy hues of the sky, the sun crept slowly up, dissipating the coolness of the night, and before seven it was very hot. The sand-flies came out and enlivened us, while the birds commenced their cries. I dressed and went out. Coffee was ready, and cigarettes, and, after taking breakfast, we were ready to start for the coast. We were to have started *muy temprano*, — very early, — but the sun climbed higher and higher, and still the horses were munching their corn, and my friend still unprepared. It is always *mañana* — to-morrow — in this country; *mañana temprano*, early to-morrow; but it is ever *mañana*, and never *temprano*. The people lose the best hours of morning, and work in the heat of the day.

Across the aguada there was a strange bird, called the *marinero*, or sailor, that uttered a succession of harsh cries for hours. The woods were full of birds of certain species, such as orioles, flycatchers, blackbirds, doves, and a host of others. I shot a very beautiful trogon, with a yellow breast, and parrots were crying out all the time. *Temprano* meant ten o'clock, when the sun nearly blistered our backs; yet even then Alonzo wanted to know if I would not like to wait till later.

Many of the trees that composed the wood we first entered supported great nests of the white ants, which looked at a little distance like black bears. We passed through a broad area covered with wild *henequen*, showing whence the plants come with which the plantations are stocked. Near some lovely aguadas was a new rancho, with a nice-looking girl preparing

tortillas; and some hundred rods beyond we saw an Indian mound of shells. An hour later I saw a man-of-war bird (*Tachypetes aquila*), and felt that, from this sign, the sea could not be far off; nor was I mistaken, for we soon struck a sandy plain with small salt ponds, and espied the great lagoon that connects with the sea.

Mangroves and stunted trees had been features of the landscape thus far, but a mound of green coco palms now rose up and relieved the monotony. This was the *cerro*, or hill, we were looking for, a shell-heap made by the ancient Indians, covered and surrounded with a few hundred coco palms. Here were two small thatched and wattled huts, dilapidated and dirty, within which were two Indian women cooking some fish. They had nothing else except a little corn; but they brought a great fish, called *lisa*, which had been broiled on the coals in its own fat, and this was delicious. It was, as it lay split open, nearly two inches thick, and we ate and relished exceedingly great flakes of it. These women had never seen a spoon, table-knife, or fork; and, as we had none with us, we used our fingers and tortillas, each one taking his turn at the fish and gravy. Fortunately, we had hundreds of coco nuts at hand, and were not obliged to drink the dirty coffee they boiled for us, but had, instead, the refreshing water of the cocos. A man came along as we finished our cigarettes, and we engaged him to take us in his boat to a point up the lagoon where there were, according to him, "*muchos flamingos*." The cerro is at a point where the lagoon meets the sea, called Boca de Ɔilam and Puntas Arenas, or point of sand. There are long sandbars and shoals, and naturally the fish congregate by millions, and the sea-birds by thousands. A wall of mangroves comes down to the border of the lagoon, and beyond the sand point is the open ocean. Flocks of pelicans, sea-gulls, terns, cormorants, peeps, plover, snipe, herons, egrets, and spoonbills were flying, wading, and swimming, in and above the water. Here, it is said, the flamingoes come by hundreds on the bar, about a gunshot from the huts among the palms; but they were not there then, — they would come that night, or *mañana*.

The man poled the boat up the lagoon, disturbing hundreds of snipe and sandpipers, to a point where the stream narrowed, and where the mangroves reached even to the water's edge, forming solid green walls, with the placid water between them. These trees were dotted with white herons and cormorants, and at a place where there was a spring, — a spring of fresh water[1] bubbling up in this salt water lagoon, — we put up a hundred ducks and two dozen spoonbills (*Platalea ajaja*) which were roosting on the trees.

Having shot some of these birds we tried to land, but the mud was so soft, and we sank so deep, that it was impossible, and we were obliged to leave them. Quitting the main channel, we entered a narrow water lane, where many egrets and night-herons, with broad boat-bills, flapped across our bows. The mangroves were in bloom, the small concealed flower being hardly perceptible. At last we reached the point where the flamingoes ought to have been, but where they were not, — a broad mud flat, where they always had fed till that day. Disappointed, we turned the boat about, after causing it to be pushed over the mud as far as possible, and returned.

The sun was down then, and the water smoother, and all the little water birds and the greater ibis and herons were going to roost, some on the sand-bars, others on the trees. Our dinner, when we reached the hut, was the same as our breakfast, — a large broiled fish, laid out on a palmetto fan, which we ate by the light of an attenuated candle, stuck near by on a *metate* table. The interior of the hut was black with smoke, dried fish were stuck up all about, nets and other paraphernalia of a fisher's hut hung in the corners, and one end was filled by a great pile

[1] Perhaps the reader may recall the accounts given of the wonderful fresh-water spring in the Atlantic, off St. Augustine, on the Florida coast, known forty years ago. "On the northern coast of Yucatan," says Humboldt, "at the mouth of the Rio Lagartos, four hundred metres from the shore, springs of fresh water spout up from amidst the salt water. It is probable that from some strong hydrostatical pression the fresh water, after bursting through the banks of calcareous rocks between the clefts of which it had flowed, rises above the level of the salt water." Florida and Yucatan are of similar geological formation; hence the appearance of these springs on the coasts of both peninsulas.

of coco nuts. Into the six hammocks, hung side by side in the centre, ten people stowed themselves as night came on, though Alonzo and I, in virtue of our silver, had a single one each. I slept uneasily, because they told me the flamingoes would come in the night, and we must get up at moonrise and hunt them. Insects of some kind — I could not tell what, nor how many, save that I knew they were numerous and sanguinary — were crawling over me all night. The hammock next me was occupied by an old woman with two babies, and she, with the men and boys on either side, was smoking and spitting all night. It was very dark, and the wind was howling through the spaces of the hut during all those weary hours, and in the morning there was a perfect "norther," and the long leaves of the coco palms were lashing their trunks in fury. At sunset the Indians told us the flamingoes would come at midnight, then at dawn, and when daylight came they were on an island two leagues off, and would appear *mañana*. When I heard this last, I knew the case was hopeless, and prepared to depart. The only sight of flamingoes we obtained was early in the morning, when two long lines flapped over the water far at sea, distinguishable miles away by their bright color.

Forty years ago, Mr. Stephens and Dr. Cabot had similar fortune to mine in this same locality, having been lured here from the port of Dilam by the stories told them of the abundance of ibis and flamingoes, and having still returned empty-handed. Then, as now, Puntas Arenas was simply a station for fishermen, and had but a single hut. I perfectly agree with the distinguished traveller, that, "for mere sporting, such a ground is not often seen, and the idea of a shooting lodge, or rather hut, on the shores of Punta Arenas for a few months in the season, presented itself almost as attractively as that of exploring ruined cities."

Stephens was then on his way back from an extended exploration of the ruins on the island of Cozumel and the east coast of the peninsula; and perhaps, as this is the nearest point we shall reach in that direction, it will be well to interpolate a short description of that portion of Yucatan. The first point at which

the Spaniards under Cordova touched upon the then unknown kingdom of Mexico was at its northeastern extremity, now called Cape Catoche. An Indian chief invited them ashore, saying, "*Con-escotoch*," which signifies, "Come to our town"; and from this he gave it the name of Punta de Cotoche. It is situated in latitude 21° 34′ North, longitude 86° 57′ 51″ West.

"It was determined by us to accept the invitation," says the old chronicler, "observing the proper precaution of going all in a body, and by one embarkation, as we perceived the shore to be lined with Indians." They were attacked by these, their first acquaintances of the new country, and fifteen of the company wounded. "These warriors were armed with thick coats of cotton, and carried, besides their bows and arrows, lances, shields, and slings; they also wore ornaments of feathers on their heads. . . . . Near the place of this ambuscade were three buildings of lime and stone, wherein were idols of clay, with diabolical countenances, and several wooden chests, which contained similar idols but smaller, some vessels, three diadems, and some imitations of birds and fishes in alloyed gold. The buildings of lime and stone, and the gold, gave us a high idea of the country we had discovered. On our return to the shore we had the satisfaction to find that, while we were fighting, our chaplain, Gonzales, had taken care of the chests and their contents, which he had, with the assistance of two Indians of Cuba, brought off safely to our ships. Having re-embarked, we proceeded as before, coasting to the westward."

The island of Cozumel was discovered the next year, 1518, on the voyage of Grijalva, and for it Cortés set sail in 1519. "There was," says Bernal Diaz, "on the island of Cozumel a temple, and some hideous idols, to which all the Indians of the neighboring districts used to go frequently in solemn procession." These idols Cortés and his companions cast down, and substituted the cross in their place, which the Indians finally consented to accept. Here they heard of two Spaniards in captivity among the Indians, one of whom they rescued, and who proved of great service afterwards as an interpreter.

North of the great island of Cozumel is Isla Mujeres, about

six miles from the coast, five or six miles in length by half a mile wide. Here some of the sailors with Cortés went on shore, and found in the town, near by, four temples, the idols in which represented human female figures of large size, for which reason they named this place Punta de las Mujeres, or Women's Cape.

TERRA-COTTA FIGURE.

What Stephens, in 1842, did for Isla Mujeres and Cozumel, in a superficial manner, the archæologist Dr. Le Plongeon has since done more thoroughly and satisfactorily. In a communication, printed in 1878, he gives a complete survey (the first) of the Isla Mujeres, locating the ancient buildings, the shrine, or temple, formerly containing the idols spoken of, and the "altar." A valuable discovery by the Doctor was made there of a terra-cotta female figure, which had formed the front of a *brasero*, or incense-burner. It was of excellent workmanship, and valuable, not only from this fact, but owing to the extreme rarity of works of the ceramic art on and near the peninsula of Yucatan.

He carefully surveyed the ruins, and made photographs of the "temple," which shows that it has suffered from the hand

of time since the visit of Stephens. He, however, locates it at the south end of the island, while Stephens erroneously places it at the north. The building is of stone, twenty-eight feet long and fifteen deep; the interior is divided into two corridors, the ceiling has the triangular arch, and it gives evidence of being the work of the builders on the mainland. Portions of the structure have been used for building purposes, but to-day, says the Doctor, the people obtain stone from a large ruined city on the mainland opposite Mujeres, where they go with fear and trembling, lest they should meet with Indians from Tulum, and be made prisoners. "A very happy confirmation of the statement of Diaz that these people burned incense was made here. Desiring to varnish some negatives, in order to carry them safely home, I put some live coals in the bottom of the incense burner, and entered the shrine to be protected from the wind; when lo! a slight vapor arose from among the coals, and a sweet, delicious perfume filled again the antique shrine as in the days of its splendor, when the devotees and pilgrims from afar used to make their offerings, and burn the mixture, carefully prepared, of storax, copal, and other aromatic resins, on the altar of the goddess."

The ancient inhabitants of Yucatan and the coasts of Mexico made great use of the gums of storax, and copal as incense.

Says the chronicler of Grijalva's expedition (1517), speaking of their visit to the temple in Cozumel, "While they were at the top of the tower an old Indian put in a vase with very odoriferous perfumes, which seemed of storax; he burned many perfumes before the idols which were in the tower, and sang in a loud voice a song, which was always in the same tune."

An historian of Yucatan, Landa, says: "The very travellers carried incense with them in a small dish. At night, wherever they arrived, they placed together three small stones, depositing upon them grains of incense."

The Spaniards, in their first voyages to these coasts, found it the custom to fumigate all strangers, and burn odorous gums before the idols in the temples. One of the complaints of an early voyager was against this prevailing custom, for he was

often nearly choked by the fumes, odoriferous though they were. This was not done, probably, to kill any germ of infectious disease which the stranger might have about him, but as a token of respect. The soldiers of Cortés were at first much flattered, because they fancied themselves saluted as gods by this token of homage. In the churches, at the present day, native gums are burned in the censers. This discovery, on the coast of

FRONT OF "INCENSE BURNER."

Yucatan and British Honduras, of *braseros*, or incense burners, confirms the truth of those statements of the historians.

The northern and eastern shores, especially the latter, are dotted with ruins; a cordon of ruined villages, cities, temples, and palaces is drawn along the coast. None more interesting has been described than the city of Tulum, which Stephens identifies, with much show of reason in his support, with the

great cities of lime and stone seen by the first Spanish visitors. Here he found a grand "castle" and extensive buildings, some with roofs of beams still supporting a crust of mortar. Buried in a dense forest, he found sculptured stones, altars, watch-towers, paintings, stucco-work, and buildings of a beautiful style of architecture. The whole northeastern portion of Yucatan is a wilderness, a section of country that was once teeming with people, and full of populous cities.

From this long detour northward, let us return once more to Puntas Arenas, where I left my friend Alonzo ready to renew the search for flamingoes. He was determined to find some, and to put me within gunshot of them, even if we had to go to the Rio Lagartos, fifteen leagues away; for he had promised the Consul he would. But I was determined to leave for Dilam and civilization, as by another day's delay I might miss the steamer down the coast, and be hindered another week in my journey to Mexico. Finding me obdurate, he yielded gracefully, and to his already numerous favors added the crowning one of giving me his horse to ride, while he returned to the rancho. Then he embraced and patted me on the back, commended me to the old Indian who had been our guide, and started on his walk of three leagues to the rancho, while I turned his horse's head westward, and we parted to meet no more.

My guide, a withered and wrinkled old man, mounted astride a little stallion, between two packs, and his legs hanging down by the horse's neck, led the way. I thought my misfortunes ended; but this was an ill-starred trip, for we had not been ten minutes on the trail before my horse got stuck in the soft mud of the shore, and, rearing up, fell over on me, pinning one leg in the soft ooze. How I escaped from the wildly-floundering animal is something I do not understand to this day; but I remember scrambling over the mud sidewise like a crab, on hands and knees, and afterward picking up cartridges, silver, and a broken watch-chain, while my guide captured the horse. After being scraped, I again mounted, experiencing much trouble after this, for the horse, made fearful by his fall, snorted and fell to trembling at every soft place in the sand. At the frequent sloughs I was obliged to dismount

and pound the horse with the branch of a tree from behind, while the old Indian dragged him ahead from in front. There were two long leagues of this kind of travelling, and we were much rejoiced when some straggling huts announced the approach to the seaport of Ɔilam. A large portion of the way was through a mangrove forest, where I had good opportunities for studying this peculiar tree, noticing how it sent out and down its aerial roots for a foothold in the water and at the border of the sea, and the entire absence of such adventitious shoots back a little distance on firm land.

At the Puerta — a collection of thatched houses and a half-completed church — we sought for breakfast, and, seeing a fine-looking girl in a doorway, with a tray of fruit on her head, I asked if we could get it there. She said yes, and gave me some tortillas and frijoles; but the table was destitute of plate, knife, or spoon, though it was clean. After breakfast I reclined in a hammock in an inner room, while the young girl swung in another a few feet distant, with a plump babe of a year or so in her lap. She was hardly fourteen, large and finely formed, with lovely oval face, and large dark eyes. She looked so young and childlike, despite her maturity and maternity, that I could hardly believe her the mother of such a bouncing child, and asked if it were really hers. "*Si, señor,*" she answered, slowly raising the lashes from her beautiful eyes, "*es mio,*" — "it is mine," — and she added, with a charming frankness that astonished me, "And yours too if you will accept it." I had intended saying something neat in compliment before I got this answer, but such an excess of politeness as an offer of a joint interest in a child I had never seen before that hour fairly overwhelmed me, and I silently withdrew, settled my bill, mounted, and rode away.

The two leagues between the port and Ɔilam proper were soon gone over, and I slept that night in the *casa* of Don Juan *el viejo*, — of Mr. John the old man. "*Mañana temprano*" was the order I gave my Indian for the morrow, and for a wonder he appeared at daylight. It rained at intervals as we rode towards Timax, but the air was pure, and sweet with the odors

of flowers, and the many birds in the thickets enlivened our journey, so that we arrived at our destination without fatigue.

I was in season to go the rounds with the Doctor among his patients of the village, and was pleased to find that he had lost but three during my absence, and had only two in a critical condition. One man, who had been expected to die of a protracted debauch, the Doctor had physicked in vain, and this morning he mixed up some powerful calomel pills, quietly remarking, "If these don't do the business, that Indian will pass in his checks before noon." They did not kill him, and my friend thereby added another laurel to his wreath, and had another convalescent to extend his fame as a *medico*. I could not refrain from reciting those classic lines of the poet: —

> "They prepared some pills of hydrargyrum,
> And their patient travelled to kingdom come."

The last day of my stay the doctor-naturalist arranged for a grand *poo*, or turkey hunt, and early in the morning, after giving his patients some quieting medicines, we galloped out to a rancho, ten miles distant. It was almost entirely abandoned, being solely in charge of Indians. The *mayoral*, or head man, had on, like all the rest, simply a breech-cloth, hat, and sandals, and carried a machete, or great knife. His skin was hard, brown, and polished. These poor people had nothing to eat except roots from the woods and what animals they could kill. The corn crop of this year had failed, and half the population of Eastern Yucatan were subsisting on roots, small game, lizards, and snakes. Speculators had got control of American corn, and many people were starving in consequence, though every steamer from the United States was bringing vast quantities to Progreso, and notwithstanding the fact that in many of the interior States of Mexico corn was selling at twenty cents per bushel.

We waited an hour under a big ceibo tree, while an Indian knocked down some coco nuts, and brought us pawpaw fruits as large as pumpkins, which tasted like muskmelons. Then we were taken across a large *milpa*, or cornfield, in the blazing sun,

and posted in a wood, while our Indians ranged about to beat up the game. In the dry, dead woods, which in this dry season much resemble our Northern forests in autumn, we waited for hours. My only visitors were a brown and golden humming-bird, a chachalaka, and some inquisitive blue-jays; but the Doctor got a shot at a flying gobbler, which escaped; and that ended the hunt. We walked back to the rancho in the heat, covered with garrapatas, ticks that are so small as to be hardly visible, yet bite like red ants. In the evening we strolled through the town, seeing many pretty faces, as at that time the ladies appear, and sit in their doorways, and chat and smoke.

FRUIT-SELLER OF YUCATAN.

The next morning the Indians brought in three turkeys, the result of our inciting them to hunt for them, and among them was one fine old gobbler, whose plumage was resplendent with sheen of polished copper and gold, who had two buckshot through the lungs. This was undoubtedly the one the Doctor had shot, and which the wily Indians had tracked to its hiding-place after our departure. This magnificent bird, representing the finest of his race, the Doctor presented to me as a souvenir of the occasion; his assistant aided me in skinning and preserving it, and it is now

in the fine collection of Wheaton Seminary, at Norton, Massachusetts. My friend had a "corner" on these ocellated turkeys, having killed and bought over one hundred. All were shipped to Paris, to a large dealer in bird skins, who supplied the museums of Europe. Never before had so many been sent to the museums, though even now there are not a dozen in the United States.

Since my departure, the Doctor has returned to his home in the North. If he can be prevailed upon to prepare his adventures for publication, the record of his three years' sojourn in the solitary forests of Yucatan, the world will be delighted with the richest mine of sylvan and aboriginal lore ever opened to the public.

The events above narrated occurred in 1881. Two years later, I unexpectedly met my friend in New Mexico, and passed a week with him in a cosy log cabin which he had erected in a cañon, nine miles above the ancient city of Santa Fé. There I saw, a thousand miles distant from their habitat, many of the animals (in skins and feathers) which we had collected in the wilds of Yucatan; I slept in the same hammock, and upon the same tiger-skin; and our talk, as we lay awake at night, was almost exclusively of the historic peninsula and its delightful inhabitants.

The *correo*, or mail-coach, left at two in the afternoon for Merida, with myself and two Yucatecos as passengers. In learning that they were Yucatecos I naturally inferred that they were gentlemen, as they were, and that they would linger at every possible point on the road, which they did, first at a *fiesta*, where there had been a bull-fight, *corrida de toros*, and then at a dance. We reached the town house of the General just in time for dinner, stayed with him an hour or two, parted from him with an affectionate embrace, and arrived at Motul at dark. Here my companions ordered supper, refusing to let me pay for it, or share in the expense, saying that I was a stranger and their companion, and that it was their duty to see me through.

We changed mules at Motul, and galloped nearly the whole

distance to Merida, stopping now and then to stretch our limbs and smoke. As there were four of us, including the driver, the volan was full. There was no room for reclining, and we were cramped in unnatural positions throughout the long twenty leagues. It was one o'clock in the morning, by the dim light of a waning moon, that we entered the suburbs of the capital, and waked the echoes of the silent streets by driving furiously to the Plaza.

MAYA MARKET-WOMAN.

BOOK II.

CENTRAL AND SOUTHERN MEXICO.

"Thou Italy of the Occident!
Land of flowers and summer climes,
Of holy priests and horrid crimes;
Land of the cactus and sweet cocoa;
Richer than all the Orient
In gold and glory, in want and woe,
In self-denial, in days misspent,
In truth and treason, in good and guilt,
In ivied ruins and altars low,
In battered walls and blood misspilt;
Glorious, gory Mexico!"

IX.

PALENQUE AND THE PHANTOM CITY.

AS part and portion of the great republic of Mexico, the distant province of Yucatan deserves more than the mere mention it usually gets from passing travellers; but, lying as it does on the way between two great countries whose centres are eagerly sought, it is generally passed by. Differing essentially from the dominant States in everything relating to soil, agriculture, aspect of surface, and even the character and manners of its people, it merits a volume by itself, instead of these few chapters. Passing in review the forty days passed in Yucatan, I confess myself fairly in love with its people. This was the sentiment with which I left its territory, and which time and subsequent experiences have only strengthened.

Without mentioning any other quality than their universal honesty, I declare this in itself enough to excite the admiration of any traveller. To be able to journey, as I did, over many leagues of country unarmed, to be able to leave one's portable property exposed wherever one stopped, without a thought of it till one's destination was reached, assured that it would arrive in safety, is enough to cause any man in his senses to hold these people in affectionate remembrance. On the eve of departure, then, I would extend to them the hand of friendship,—ay, of affection; with the assurance that one stranger, at least, will long remember their many amiable traits.

The steamer was signalled; like every one that had passed for two months, it was full of engineers for the great railroads of Mexico, all hurrying forward to the capital, that wonderful city in the mountain valley. It was not strange, then, that I should have felt impatient to join that eager throng, and to hasten

onward, where the pulse of human activity was beating more strongly.

As has been observed, Yucatan possesses few natural attractions in the shape of scenery, and its coast is no better than the interior; low, flat, uninviting, save only where a clump of palms rises above the sands.

Leaving Progreso in the evening, the next morning finds us off Campeche, ten miles from shore. It is the misfortune of this rather famous port that it has no harbor,—that, in fact, no vessel of any considerable size can approach within five miles of land. It is hence difficult to say, in the morning, which of the walled towns glaring white on shore is Campeche; but as the sun gets around to the westward, in the afternoon, the veritable one stands out, like a city of marble, against hills of green. Square white buildings are then plainly visible, and cathedral towers; and other towns shine along the coast, which is high, and apparently dotted with gardens. According to the Mexican law, the steamer is obliged to remain at least twelve hours in or off a port, and this delay gives us a chance to take a peep at Campeche, though through another's spectacles. We learn that it is a finely built city, though in a hot and not over-healthy locality. The character of the surface of the province is similar to that of Yucatan, though rising higher, and everywhere may be found peculiar *subterraneos*, or caverns. The city, indeed, is built above some very extensive ones, once used as catacombs, in which have been found mummies and idols.

Below Campeche is the isolated town of Champoton, where occurred, in 1517, the bloodiest battle that preceded the advent of Cortés upon this coast, when the Indians attacked Cordova, and killed or wounded all of his party save one. Below this deserted country is the Laguna de Terminos, and the low, unhealthy coast region famous the world over as producing vast quantities of logwood. Carmen is the headquarters for the logwood-cutters, situated on an island at the mouth of the great lagoon of Terminos. The sculptured tablet, of which mention is made farther on, was shipped from Carmen, by the United States consul resident there, to the Smithsonian Institution.

Leaving Campeche, the steamer moves slowly on to Frontera, at the mouth of the river Tabasco, which once bore, and ought

1 Palace.
2 Temple of the Three Tablets.
3 Temple of the Beau Relief.
4 Temple of the Cross.
5 Temples of the Sun.
6 Ruined Pyramids.
7 Aqueduct.
8 Ruins.
9 Ruins.

to retain, the name of Grijalva, who discovered it in 1518, — where the green and muddy waters, laden with the branches and

trunks of trees, proclaim a stream of great volume, draining an area covered with tropical vegetation. The anchorage is six miles off a low and densely-wooded coast, with two breaks in it where the river comes out to the sea. A small steamer comes out here, which takes freight and passengers to the coast town, Frontera, and also to San Juan Bautista, the capital city of Tabasco, eighteen leagues up the river, the fare to shore being five dollars, and to San Juan twelve.

Another point of historic interest now claims our attention, for here it was that Cortés encountered the first determined resistance to his arms, and in the town, which he subsequently captured, he obtained that treasure so precious to him and his army, Marina, the Tabascan princess. Cortés landed here, and, drawing his sword, took possession of the country in the name of his Majesty the King of Spain, and made three cuts in a great ceiba tree (which may yet be standing, for they live to a great age) in witness thereof, declaring himself ready to defend it, against any one who denied his Majesty's claim, with the sword and shield he then held. A terrible battle shortly after ensued, in which cavalry were first used on the soil of Mexico. The Indians fought with incredible bravery, until Cortés and his small body of horse appeared in their rear, when they were panic-stricken, thinking horse and rider one fearful being, and fled in dismay. It was on this occasion that there appeared (according to the historian Gomara) the glorious apostle St. James, riding on a dappled horse. Honest old Bernal Diaz, whose narrative I am following, says he did not see this apparition. But he adds, "Although I, unworthy sinner that I am, was unfit to behold either of those holy apostles (St. Peter and St. James), upwards of four hundred of us were present; let their testimony be taken."

After the Indians had tendered their submission, they were shown the horses, and when struck by their neighing were told that these wonderful creatures were angry because they had fought against them. The innocent natives then craved their pardon, and offered them turkey-hens and roses to eat, as did the Indians of Peten some years later.

By sailing up the river Tabasco, a point may be reached, in the season of high water, whence a journey of two days overland will bring one to those grandest of Mexican ruins, the group of Palenque; and it is but a few days' travel to Chiapas and the Pacific.

"Unlike Copan, yet buried, too, 'mid trees,
Upspringing there for sumless centuries,
Behold a royal city, vast and lone,
Lost to each race, to all the world unknown,
Like famed Pompeii, 'neath her lava bed,
Till chance unveiled the 'City of the Dead.'
Palenque![1] seat of kings! as o'er the plain,
Clothed with thick copse, the traveller toils with pain,
Climbs the rude mound the shadowy scene to trace,
He views in mute surprise thy desert grace.
At every step some palace meets his eye,
Some figure frowns, some temple courts the sky:
It seems as if that hour the verdurous earth,
By genii struck, had given these fabrics birth,
Save that old Time hath flung his darkening pall
On each tree-shaded tower and pictured wall."

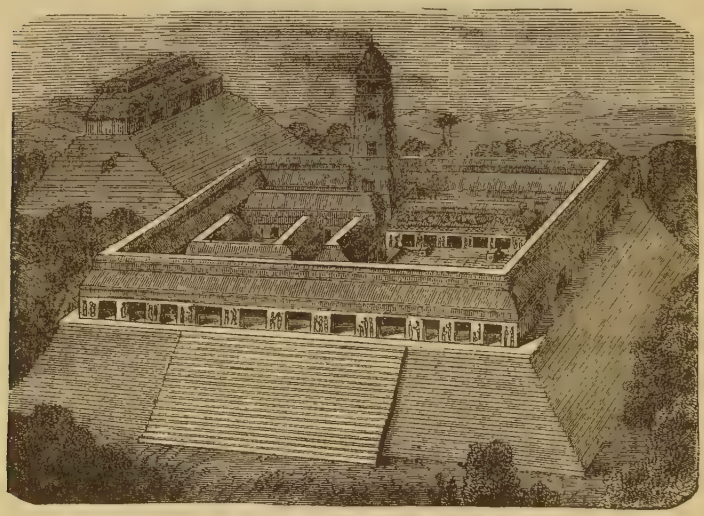
The poet has not exaggerated the beauties of Palenque, nor has pen yet adequately described them: they are indescribable. The buildings are situated eight miles from the small village of Palenque, and, though Cortés must have passed quite near them on his march to Honduras, in 1524, neither he nor his garrulous companion, Diaz, makes mention of them, and it was not till 1750 that they were discovered.

In 1787 they were explored, by order of the king of Spain, by Captain Antonio del Rio, whose report was only finally published in London in 1822. In 1807 they were investigated by Captain Dupaix, at the instance of Charles IV. of Spain; but his laborious work was not given to the light till 1834–35, in Paris. It is to the American traveller, J. L. Stephens, that we owe the best account of their present appearance, this gentleman having visited them in 1839–40, when on his way, for the first time, to Yucatan.

In Palenque we find those mounds, or terraced hillocks, upon

[1] Pronounced Pa-lén-kay.

which the buildings are erected, high and of vast dimensions. The "Palace" is the grandest structure, and is 238 feet in length by 180 feet deep, while its height is but 25 feet. It stands on an artificial elevation of oblong shape, 40 feet high, 310 feet front, and 260 feet at each end. It was constructed of stone, with a mortar of lime and sand, and the whole front was covered with stucco, and painted in red, blue, yellow, black, and white. Another building, the *Casa de Piedras*, is situated in a



PALENQUE RESTORED.

similar position to the *Casa del Adivino* in Uxmal, on a pyramidal structure, 110 feet high on the slope; and is "remarkably rich in stucco, bas-reliefs, and tablets of hieroglyphics."

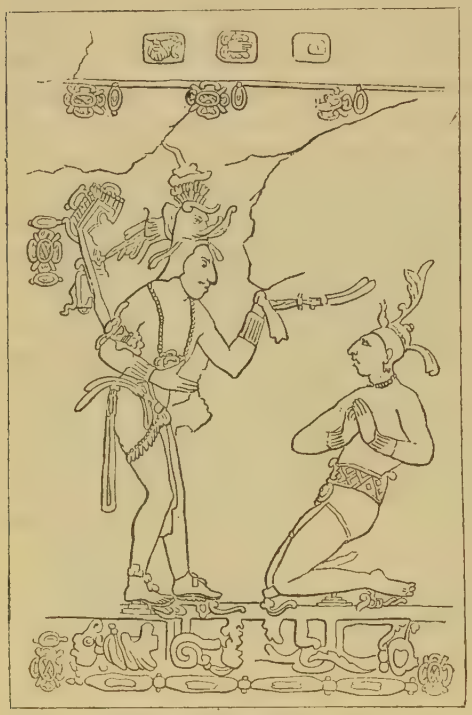
These hieroglyphics, says Stephens, "are the same (?) as were found at Copan and Quirigua. The intermediate country is now occupied by races of Indians speaking many different languages, and entirely unintelligible to each other; but there is room for the belief that the whole of this country was once occupied by the same race, speaking the same language, or at least having the same written characters."

It would not be out of place here to introduce the specula-

tions of the French naturalist, Morelet, upon the ruins and the people who once occupied them: "The analogy can no longer be denied between these ruins and the monuments of Mexico, which tradition attributes to the Toltecs. These comparisons show the action and preponderance of a common race over the whole territory lying between Cape Catoche (Yucatan) and the Mexican table-land. . . . . We find that the Toltecs, in the middle of the seventh century, were in possession of Anahuac, where civilization probably developed itself. Later they abandoned this region and emigrated in a southeasterly direction, — that is to say, into the provinces of Oaxaca and Chiapas. It is easy enough, therefore, to arrive at the conclusion that Palenque was founded at this time (?), and was consequently contemporaneous with Mitla (in Oaxaca). Says Herrera: 'While the inhabitants of Mayapan (Yucatan) lived in peace and prosperity, there arrived from the south, from the heights of Lacandon, a large number of people, originally from Chiapas, who, after having wandered forty years in the wilderness, finally settled ten leagues from Mayapan, at the base of the mountains, where they built magnificent edifices and conformed to the customs of the country. . . . . If the undisputed analogy be considered which exists between the ancient monuments of Mexico and the ruins of Palenque, and between the latter and those of Yucatan, and if we consider also the geographical position of these ruins, spread over the line of Toltec emigration, and bearing evidence of antiquity, the more marked because they are less distant from the point of departure, — if all these be considered, it will doubtless be granted that these different works were from the hands of the same people who successively built Tula, Mitla, Palenque, Mayapan, and all the edifices now in ruins on this peninsula."

Perhaps it will seem to later investigators more in accordance with discoveries, recent and in the past, to ascribe to Palenque the honor of being the original starting-place of the Toltecs. We should then read, as cities built in the order named, Palenque, Mayapan, Mitla, Tula, &c.; and we should also infer a greater antiquity than the above-cited writer assumes, and hold that, though the first intimation of the Toltecs is as moving from

the north southward, yet they may have primarily emigrated northward from Palenque, in ages past, now lost in obscurity, from which they only emerge in historic times as returning to their former home.



STUCCO ORNAMENT.

We are all, presumably, acquainted with the relation, by the learned Brasseur de Bourbourg, of the native tradition of Votan. This personage, accompanied by chiefs and followers, landed, many years before the opening of the Christian era, upon the shores of the Laguna de Terminos. He ascended the great Usumacinta River, a tributary of the Tabasco, and near one of its affluents laid the foundations of a large city, which became the metropolis of a mighty empire. It was called Nachan, the city of serpents, and was none other than the beautiful Palenque, whose ruins alone we now gaze upon.

Alas for the vanity of human speculation and the insecurity of tradition! Theories, as I have previously remarked somewhere, are almost as various as the writers and investigators who have studied these ruins. There seems, however, to be a general belief that this region was the seat of a vast and influential theocratic empire. Upon the walls are sculptures which speak to us in an unknown language, hieroglyphics, and the chiselled types of a people long since departed. Regarding

these, again, a writer of the early part of this century, Galindo, says: "The physiognomies of the human figure in alto-relievo indicate that they represent a race not differing from the modern Indians; they were, perhaps, taller than the latter, who are of a middle, or rather small stature, compared with Europeans. There are also found among the ruins stones for grinding maize, shaped exactly like those employed to-day by the Central American and Mexican Indians. They consist of a stone slab (*metatl*) with three feet, all made from one piece, and a stout stone roller, with which the women crush the maize on the slab. Though the Maya language is not spoken in all its purity in this neighborhood, I am of opinion that it was derived from the ancient people that left these ruins, and that it is one of the ancient languages of America. It is still used by most of the Indians, and even by the other inhabitants of the eastern part of Tabasco, Peten, and Yucatan. Books are printed in Maya (the language of Yucatan) and the clergy preach and confess the Indians in the same language."

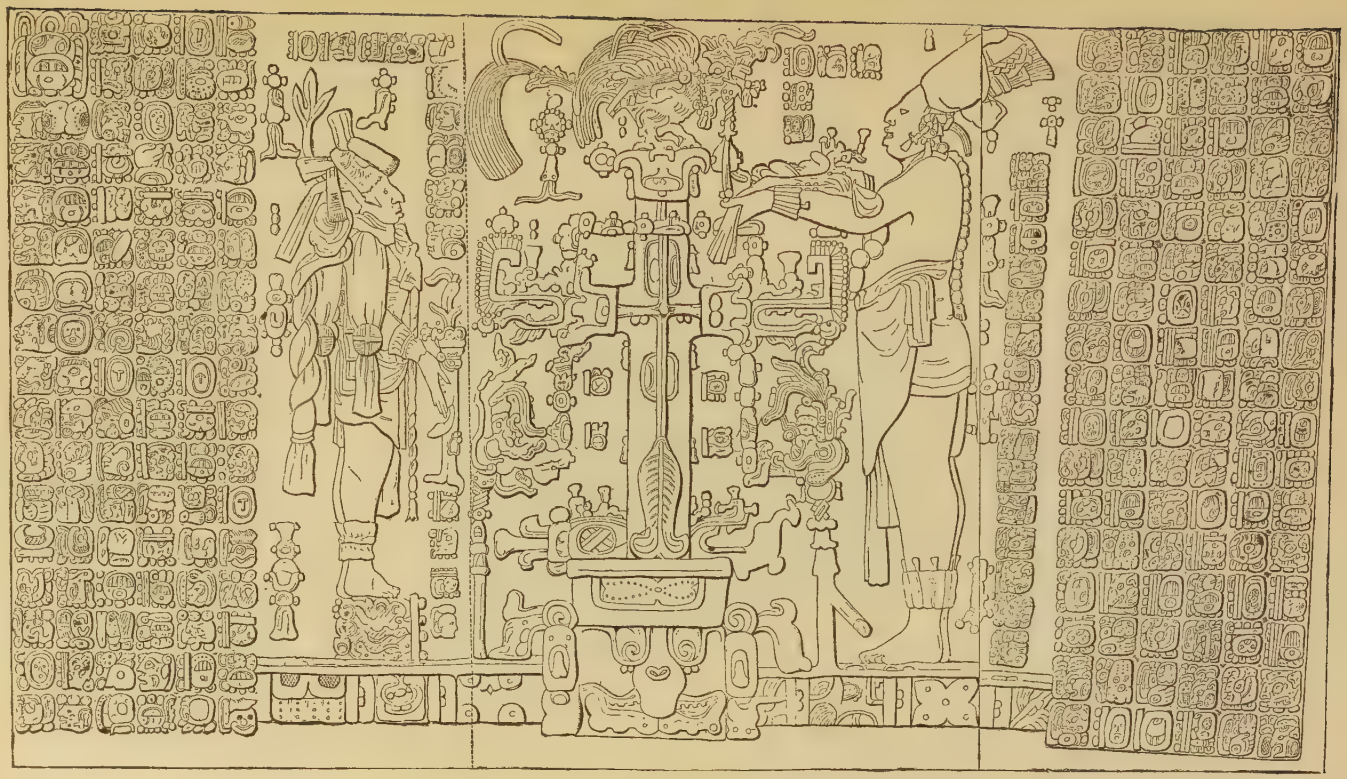
These observations are thrown out, not to impede the progress of the reader, but to stimulate thought upon a subject which is constantly demanding and receiving increased attention from European, as well as from American scholars. In a ruined structure known as "Casa Number Two" — it is needless to say that this is not the name bestowed by its builders — is a portion of the famous sculpture known as the "Palenque Tablet," containing the figure of the *cross*, about which archæologists have wrangled long and bitterly. A curious history pertains to this slab, which, so far as is known, is as follows. It was described and figured by Del Rio in 1787, and subsequently by all who visited the ruins, — Dupaix, Waldeck, Stephens, Charnay. In 1842, a portion of the sculptured slab was sent to the United States, where it now finds a resting-place in the National Museum at Washington. This portion is that represented in the right of the engraving, as containing the carven glyphs, and situated back of the human figure making the offering to the bird on the cross (see restored representation of the Palenque Cross, taken from the Report). To Professor Rau, of the Smithsonian Institu-

tion,[1] we are indebted for the restoration of the sculpture as it must have originally appeared in the "Sanctuary of the Cross," at Palenque. So that, through his diligent labors, though one portion of this valuable sculpture was torn by vandal hands from its place and sent to the United States, and another lies buried beneath the mould of the Tabascan forest, while but one third remains affixed in its original position in the wall, an exact picture of this great work as a whole is now placed before the readers of this volume. The description of it by Stephens is perhaps as good as any. "The principal subject of this tablet is the cross. It is surmounted by a strange bird, and loaded with indescribable ornaments. The two figures are evidently those of important personages. They are well drawn, and in symmetry of proportion are perhaps equal to many that are carved on the walls of the temples of Egypt. . . . . Both are looking towards the cross, and one seems in the act of making an offering, perhaps of a child; all speculations on the subject are of course entitled to little regard, but perhaps it would not be wrong to ascribe to these personages a sacerdotal character. The hieroglyphics doubtless explain all. Near them are other hieroglyphics, which remind us of the Egyptian mode for recording the name, history, office, or character of the persons represented. This tablet of the cross has given rise to more learned speculation than perhaps any others found at Palenque."

We will not go into these speculations regarding the pre- or post-Columbian introduction of the cross into America, further than to mention that every evidence tends to prove the former; although we may not, perhaps, subscribe to the statement of a certain author, that it was originally brought here by St. Thomas, who is said to have preached to the Mexican heathen away back in the by-gones.

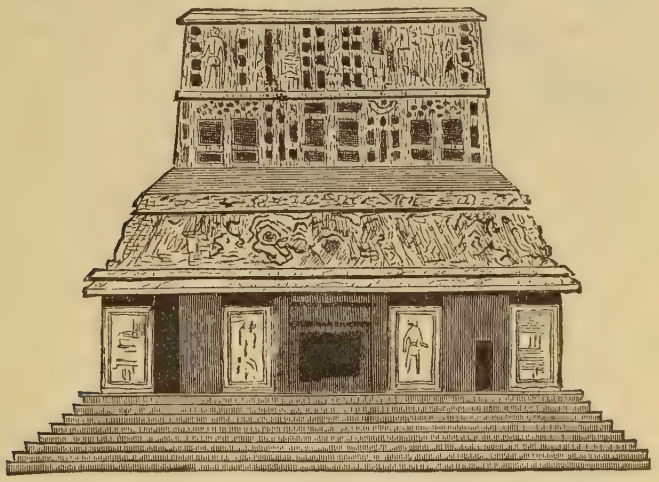
Professor Rau published an interesting comparison between the glyphs sculptured on the Tablet of the Cross and the symbols of the celebrated "Maya alphabet" of Landa, one of the first bishops of Yucatan. He found many points of contact

[1] "The Palenque Tablet," — Smithsonian Contributions to Knowledge, — by Charles Rau. Washington, 1879.



"TABLET OF THE CROSS," RESTORED.

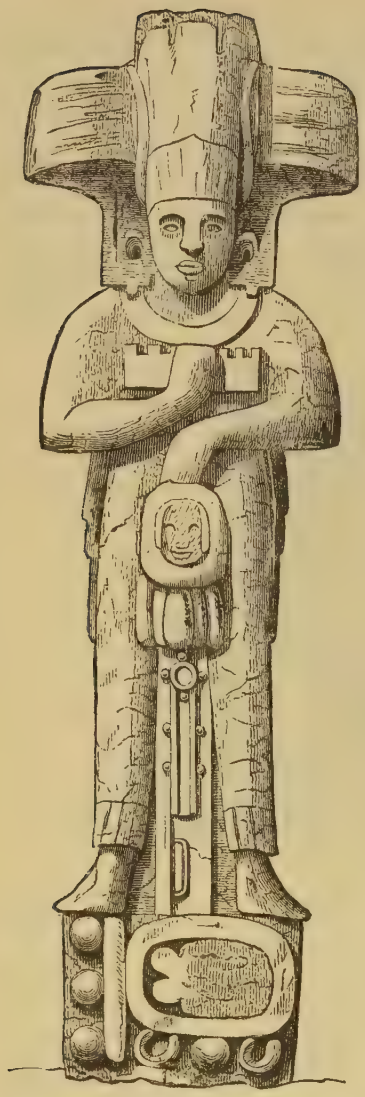
between the two, and such differences as would naturally arise between the writing of a language at epochs perhaps thousands of years apart. Regarding the stucco ornaments, which are characteristic of Palenque, Stephens says: "The roof (of the Temple of the Cross) shows two slopes, the lower one of which was richly ornamented with stucco figures, plants, and flowers, but mostly ruined. Among them were the fragments of a beautiful head and of two bodies, in justness of proportion and symmetry approaching the Greek models." The building containing this treasure, the Tablet, is on a pyramid 134 feet high on the



TEMPLE OF THE CROSS.

slope, from the top of which a view extends, over a vast forest, to the Laguna de Terminos and the Gulf of Mexico.

The country southwest of Yucatan, that portion of Guatemala west of the British colony of Belize, south of Campeche, and east of Chiapas and Tabasco, is an almost unexplored region. Here the aboriginal Indians roam with all the freedom of their ancestors before Spanish dominion. Somewhere in this wild region is situated the "mysterious city" described by Stephens and Morelet, said to have walls of silver which glisten so that they can be seen one hundred miles away, and to be still occu-



STATUE FROM PALENQUE.

pied by the descendants of its original builders. The ruins of former races may be traced throughout all Southern Mexico, through Oaxaca, Chiapas, Tabasco, and Yucatan, until they culminate in the latter State in the wonderful structures that are the amazement of the present generation; but all are silent cities,—all their inhabitants departed, hundreds, perhaps thousands, of years ago.

But here is said to be a veritable aboriginal city, not only preserving its own people, but retaining all the ancient customs and rites of their progenitors.

This is a region more worthy of investigation than the heart of Africa. To find the key to lost arts and manufactures, to find a people still preserving the rites of sacrifice,—this were enough to incite hundreds to exploration.

Unfortunately, those who go in never return! It is easy enough, apparently, to penetrate to that city, but no one who has once been there has ever been known to reach the coast again.

On the borders of that region is the wonderful Lake Peten, with its lovely town of Flores, on an island, in which the simple inhabitants set up an effigy of a horse of the Spanish con-

querors, and deified it. Now what are the facts about that city? So far as we can learn, it was first made known to people outside of Mexico through the celebrated archæologist, Stephens. The *cura* of Quiché, an Indian town in Guatemala, told him that he had seen it from the ridge of high mountains visible from that very place. The difficulties in the way appalled even an intrepid traveller like Stephens, and he shrank from undertaking its investigation. That he firmly believed this story is evident to any one reading the pages of his books. Later on, he sums up the result of his explorations, and says: "In fact, I conceive it to be not impossible that within this secluded region may exist at this day, unknown to white men, *a living, aboriginal city*, occupied by relics of the ancient race, who still worship in the temples of their fathers."

STATUE FROM COPAN.[1]

[1] A ruined city of Central America, on the Copan River, in Honduras. The ruins extend along the river for nearly two miles, and include a temple 624 feet long, pyramidal structures, and colossal carven idols and altar stones.

This was forty years ago. A few years later, a more adventurous traveller than Stephens, Monsieur Arthur Morelet, entered this region by the river Usumacinta, and skirted the border of that supposed centre of ancient civilization. Being alone, his adventures are of a more fascinating character than those of Stephens, who seldom departed from certain lines of travel. He plunged at once into the dense forests that surround the territory of the Lacandones, travelling from the Gulf coast at Laguna de Terminos to Lake Peten, thence to Guatemala (the capital), thence to the Gulf of Honduras, and home via Havana. He spent several years in that country, and evidently believed in the existence of the "mysterious city."

In an introduction to the English translation of the book written by the above-mentioned traveller, Mr. E. G. Squier thus speaks of this region, "lying between Chiapas, Tabasco, Yucatan, and the republic of Guatemala, and comprising a considerable portion of each of these States, which, if not entirely blank, is only conjecturally filled up with mountains, lakes, and rivers. It is almost as unknown as the interior of Africa itself. We only know that it is traversed by nameless ranges of mountains, among which the great river Usumacinta gathers its waters from a thousand tributaries, before pouring them, in a mighty flood, into the Laguna de Terminos and the Gulf of Mexico. . . . . Within its depths, far off on some unknown tributary of the Usumacinta, the popular tradition of Guatemala and Chiapas places that great *aboriginal city*, with its white walls shining like silver in the sun, which the cura of Quiché affirmed he had seen with his own eyes from the tops of the mountains of Quezaltenango."

But did the endeavors to find this sacred stronghold cease with Morelet? By no means. If we are to believe a Spanish memoir, written by Don Pedro Velasquez, of Guatemala, the stories circulated by Stephens stimulated two young men of Baltimore to set out on an expedition for its discovery. Passing over the uneventful period of their voyage, we find them at last on the borders of the valley containing the object of their search. The city in all its glory of glistening walls and

magnificent statuary shone before them; they entered its precincts, after a skirmish with the Indians, and saw its mysteries. Endeavoring afterwards to escape, one of them was sacrificed upon the high altar of the sun, and the other so badly wounded that he died in the forests of Guatemala. Only Don Velasquez and a few trusty guides escaped to tell the story of their perilous adventures. This was thirty years ago, since which time, so far as we can learn, no successful attempt has been made.[1]

Imagine what a stimulant to an earnest explorer the possible discovery of this wonderful city offers! It would be well worth a year of one's life even to look upon its walls, and another year would be a cheap purchase of a glimpse of its interior and people! It took such a strong hold upon the writer, that he narrowly missed going on the search alone, when, in 1881, he found himself on the borders of that country, in Yucatan and in Southern Mexico. Six years ago he was in correspondence with a well-known scientist in relation to an investigation of the adjacent country, and later he made a proposition to enter that region, and to devote several years to a study of the people inhabiting it.

It is his firm conviction that in no other way can be obtained the clew to the hieroglyphs that adorn the walls of those ruins in Yucatan and Guatemala. In no other way can we hope to obtain a knowledge of that strange people, — of their language, of their ancient arts and systems of government.

Unfortunately, scientific authority did not coincide with the views expressed, or rather could not furnish the necessary funds for the purpose, and the writer went towards South America, where he remained nearly three years, engaged in ornithological labors. When he again made a proposition for an extended tropical trip, he was asked if he would accept the position

[1] We are not unacquainted with the recent alleged discovery, by M. Charnay, of ruins in the neighborhood of the Usumacinta, where he found an English traveller already in possession, and to which ruins he gave the name of "Lorillard City." But this, though an important discovery, was not in any sense an occupied city, nor did it add materially to our knowledge of those cities which lie buried in numbers in the immense forests of Tabasco and Guatemala.

of naturalist to an Arctic exploring expedition; this was declined, and later filled acceptably by the gallant young Newcomb, of Salem, whose adventures have been published, and are well known.

Our scientific institutions seem bent upon wasting their energies by dashing their heads against the icy barriers about the Pole. Why not turn their attention to the tropics, to that portion of our country where American civilization had its birth?

X.

VERA CRUZ AND JALAPA.

PERHAPS I have sufficiently indicated the position of Palenque, and the way there, my object being merely to direct attention to this region so long forgotten; for it has not been half explored. As it is far from our purpose to penetrate the wilds of Central America in search of somewhat mythical cities, but more in accordance with the times to jog along in the beaten track of travel, we will return to the coast, to Tabasco.

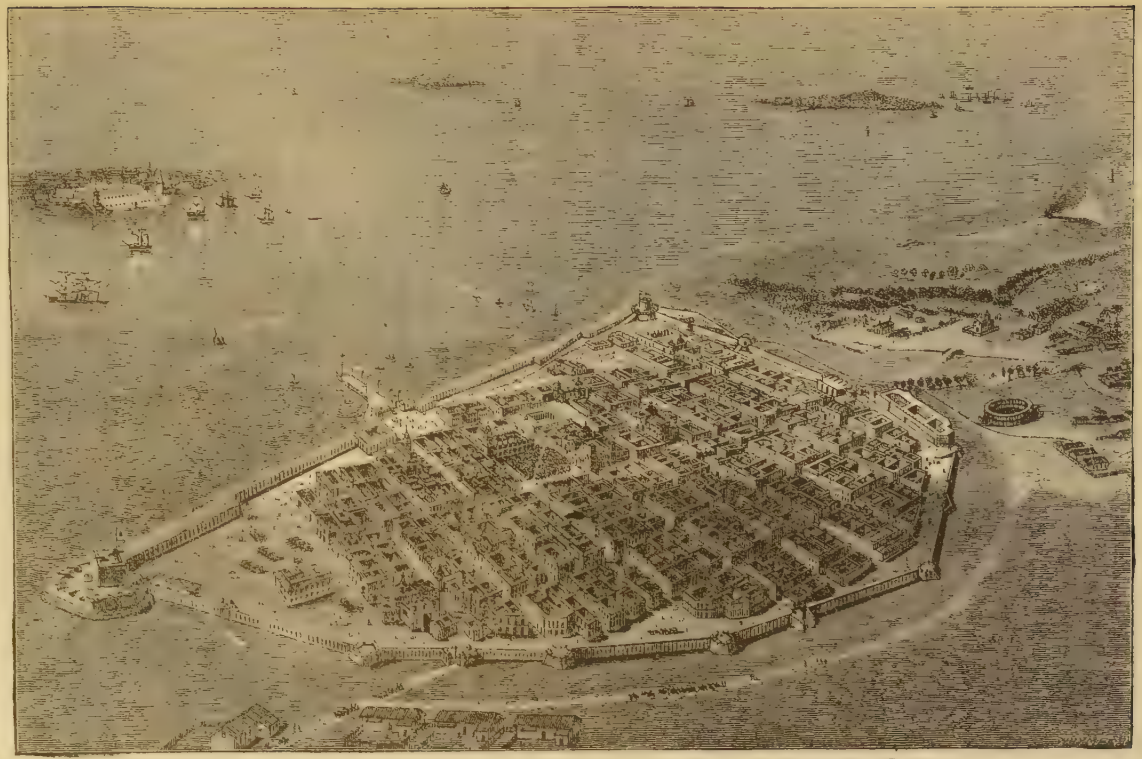
Taking with him Marina, the Tabascan princess, as his mistress, (who soon became valuable as an interpreter, and subsequently saved the Spanish army from destruction,) and a number of other captives, Cortés sailed westward and northward. Over the same route, though perhaps a little farther off shore, the steamers to-day take their course to Vera Cruz. About midway between Frontera and the port of Vera Cruz, the river Coatzcoalcos flows into the Gulf. This in itself were of no consequence, but that it indicates the narrowest portion of the continent north of Panama. Regarding this isthmus of Tehuantepec, it would be difficult to write anything new at the present day, for it has been before the public for many years as a claimant for a canal. Long before the days of Humboldt, this narrowing of the continent had drawn to it the eyes of the world. Though surveys have demonstrated the impracticability of a ship canal, they have shown the feasibility, even necessity, for a railroad. The distance across the isthmus is but little over one hundred miles, and a depression in the cordilleras renders the grades next to nothing. This road is one that assumes more than sectional importance, and rises to the dignity of an international highway. Although it is also one of

the few roads that would seem likely to benefit the builders, yet the American company engaged in the task failed, and it has reverted to the Mexican government.

It is the region above described that is passed by on the way from Progreso to Vera Cruz; a land richer in recollections of the past than possibilities for the future, but which will doubtless share in the returning tide of prosperity that is now deluging Mexico.

Another morning finds us before another port, *La Villa Rica de la Vera Cruz*, — the Rich City of the True Cross, — gateway to the Mexican capital, through which, in times past, have poured those tides of wealth that have filled the coffers of Spain. It is a lovely picture this city presents from the sea, — the line of walls lying above and in front of stretches of sand dunes, capped here and there with verdure, but mostly bare and gray. These walls are tinted, red, yellow, blue, green, but are never allowed to glare out in ghastly white. And then its domes and turrets: twenty-two can be counted from the steamer's deck, some of shining porcelain, that glisten like polished marble in the sunshine. The suburbs to the south seem even more attractive than the city, with low, red-roofed houses, groups of palms, and ruined forts. Down the coast stretch the wind-blown sandhills, — the *medanos*, — yellow, flecked with green, with coral reefs tossing the foam above the blue water, and the Island of Sacrifices — *Isla de los Sacrificios* — lying low to the eastward.

Under the walls of the castle fortress, *San Juan de Ulua*, the steamer drops anchor, half a mile from the mole, where seems concentrated the life of the city. This castle is built upon a small barren island, upon which Juan de Grijalva landed, in June, 1518. It being the day of the feast of St. John, the island was called San Juan de Ulua. The Spaniards found idols here, and vestiges of human sacrifices, offered, the Indians told them, by the natives of Culchua, or Ulua (Mexico). The construction of the fortress is believed to have been begun in 1662, though spoken of in 1625, but not finished till 1796, when a light-tower (still standing) was added. Several inscriptions,



San Juan de Ulua. VERA CRUZ. Isla de los Sacrificios.

(Before its fortifications were levelled.)

bearing date respectively 1633, 1700, 1707, and 1778, attest the progress of various portions of the work. It is in shape a rather irregular parallelogram, with a small watch-tower, or rampart, on each one of its angles. Besides the guns of the structure proper, it has water batteries, and was considered at one time impregnable. It is half a mile from shore, and commands the city, which it has several times nearly reduced to ruins. It was held by the Spaniards until 1825, and remained loyal to the king of Spain for nearly four years after their expulsion from the mainland. At present used as a prison for political offenders, it is especially dreaded by prisoners from the interior of the country, as incarceration there is almost sure to end in death, from disease engendered in its damp dungeons.

If the coast is approached in clear weather, there may be seen that glorious apparition, the volcano of Orizaba, its profile sharply cut against the blue sky full sixty miles inland. Known to the ancient Aztecs as *Ciltlaltépetl*, or the Mountain of the Star, it was called by the Spanish sailors *La Estrella de la Mar*, — the Star of the Sea. And well it merits this latter title, since its crystal peak, borne on high 17,500 feet, is visible more than one hundred miles away.

The half-mile or so between steamer and quay is soon gone over, in boats shaded by awnings and propelled by boatmen clad in immaculate garments of white, and you are soon ashore and inspecting the city.

A ZOPILOTE.

One of the hottest cities of the republic, Vera Cruz is also the unhealthiest, and by some strange anomaly it is likewise one of the cleanest. Streets white and clean are drained by gutters equally free from filth; and if any refuse escapes the eye of the sanitary authorities, those other members of the board of health, the *vultures*, are sure to snatch it up and bear it away, or devour it on the spot. These valued birds are seen by hundreds, perched on every roof-top, and waddling through all the streets. They are called

zopilotes, from the Aztec word *zopilotl*, and belong to the genus *Cathartes*, — two species, *aura*, or the turkey buzzard, and *atratus*, the black vulture.

The Plaza is the only attractive point in the city; and though it is small, it has marble walks and some wind-blown trees. The architecture is the same as that of all these cities of New Spain transplanted from the mother country, — a combination of Spanish and Moorish that redeems the city from sameness and makes it interesting to a stranger. That the hotels are clean and fairly served, that there is a tramway with a single track traversing the city, that you run the risk of catching the *vomito*, or yellow fever, if you pass a night on shore, — all these items of information are given in the guide-books, and have become familiar to every traveller.

There need be no exaggeration regarding the vomito, for there is scarcely room for any, in a city which has for many years been known as *la ciudad de los muertos*, — the city of the dead. The Vera-Cruzians claim that the death-rates are overestimated, yet people enough succumb to "Yellow Jack," for all that, to make a stranger cautious how he exposes himself. Periodical visits from this dread visitor are as sure as taxes and death in its ordinary shape. In June, 1881, for instance, people were dying at the rate of one hundred a week.

A clipping from a Mexican newspaper, of the date of my residence in the city of Mexico, will illustrate the extent to which this evil had spread, and was raging at that time: —

"Pandora's box was not a circumstance to the evils which Vera Cruz contains. Advices from there state that the yellow fever prevails to an extent unknown in other years.

"Old residents are dead and dying, and medical aid is pronounced of no avail. Whole families are leaving for Jalapa and Orizaba. In addition, the city has the typhoid and bilious fevers, small-pox, and several other pleasant adjuncts to agreeable living. The panic is very great."

From my note-book of that date I extract the following: —

"Forty deaths a day are reported from yellow fever and small-pox in Vera Cruz. It would seem as though no one would be left to carry on

business in that ancient city ; yet it goes on the same, in spite of the dead and dying. A friend just up from the coast tells me that he saw eight bodies carried out the morning he arrived. Yet the residents there treat the matter lightly. The late American Consul, Dr. Trowbridge, who has had a successor appointed, after twelve years of service, retires in health, and laughing at the reports of fever. He is waiting for his successor. If I were that man I should let him wait, — at least till cooler weather came. Dr. Trowbridge and his family had yellow fever the first week they came to Vera Cruz, while his predecessor, who had held the office many years, and had resigned, died before he could leave the city. It is strange, yet I hear there were hundreds of applicants for that precarious consulship at Vera Cruz, where an escape from the clutches of 'Yellow Jack' is an exception. Are offices, then, so scarce up North?"

A week later the paper quoted from above contained this item: —

"Hon. E. H. Rogers, of Nebraska, who was recently appointed Consul at Vera Cruz, died last Monday from the fatal effects of the climate.

"Mr. Rogers had but just arrived, and had not entered upon the discharge of his duties when his death occurred. Much sorrow is felt in this city over the sad news. The funeral rites of the deceased were observed at the Evangelical Church of Vera Cruz."

I was in the city of Mexico when the news of the appointment of the new Consul reached us there, and remember that we all speculated as to the probable length of his stay, expecting he would soon be taken with the vomito, but little dreaming of such a fatal termination. Again, in returning through Vera Cruz in September, on my way back to the United States, I experienced the welcome hospitality of the Trowbridges, and under date of that visit find the following entry in my notebook: —

"At the United States consulate, all the old family who have been there so long, and have made Americans so welcome, were residing, except Dr. Trowbridge, the head of it, who was absent in the United States. The sad ending of the recent attempt to replace him, by the death of his successor after but thirteen days' residence, should read a lesson to those in office in Washington, who appoint men to foreign stations for which they are not qualified nor acclimated. The twelve years'

residence of Dr. Trowbridge here as our Consul, during which he has discharged the duties of the office faithfully, and won respect from everybody, should entitle him to a reappointment. It is impossible for one not acclimated to reside in this city long without receiving a visit from the vomito, which may prove fatal. The Doctor and his family have passed through many bad seasons, they have all had the fever, and it is to be hoped they may be spared yet many years to live in a place they seem to like."

Though Vera-Cruzians deny that the vomito is endemic here, it has existed too long in this place to have their assertion believed. The oldest description of yellow fever is that of a Portuguese physician, who observed it in Brazil, between 1687 and 1694; and its first appearance in Mexico is said by the historian Clavigero to have been in 1725. Even the best of our physicians disagree as to the origin, and even the contagious character, of the vomito; hence, we will not discuss this vexed question. But it would seem that the latest theory, that of a South American physician, that it is propagated by germs from the soil in which fever victims have been buried, and thus rendered endemic, was more nearly correct than any other yet advanced. It has been noted that it rages more violently in some seasons than in others; and Humboldt stated that an intimate connection was always observed between the march of diseases and the variations of atmospheric temperature. "Two seasons only are known at Vera Cruz, — that of the north winds (*los nortes*), from the autumnal to the vernal equinox, and that of the south winds, or breezes (*brisas*), between March and September. The month of January is the coldest in the year, because it is farthest from the two periods in which the sun passes through the zenith of Vera Cruz (the 16th of May and the 27th of July). The vomito generally begins to rage in that term when the mean temperature of the month reaches 75° Fahrenheit. In December, January, and February, the heat remains below this limit; and, accordingly, it seldom happens that the yellow fever does not entirely disappear in that season, when a very sensible cold is frequently felt."

The last and the first months of the year, then, are the safest

in which to pass through Vera Cruz, and the midsummer months the most dangerous. Although the fever commences in May, it is generally at its worst in August and September, as it requires a certain time for the germs of the disease to develop. The disease first attacks strangers in the country, especially those from a colder climate, where frost occurs; and it has been observed by Humboldt that among people from the table-lands of Mexico the mortality is relatively greater than among visitors coming from over the sea.

A stay in Vera Cruz even of a few hours is sufficient for one to contract the contagion, during the season of fever, and the greatest precautions must be taken by those who are compelled to run the gantlet in the summer months. We have had many lamentable examples of late years, one of the most to be deplored being that of General Ord, our brave army officer, whose business and family interests took him to Mexico, and who died in Havana, of fever contracted at Vera Cruz. I have purposely digressed from our line of march to repeat the warning to would-be visitors to Mexico, not to pass through Vera Cruz in the summer season.

Once a person has had the fever, he generally has immunity from further attack, and the old residents of Vera Cruz laugh at its approach, and pursue their avocations without seriously regarding it. This is why they cling so strongly to this pestilential seaport, since the transfer of its business to a new and more healthy locality has often been urged, and always by them strenuously resisted.

General Grant, when President of the Mexican Southern Railroad, encountered great opposition from them because he proposed having the Gulf terminus of his line at Anton Lizardo, a healthy locality, with a comparatively good harbor, some distance down the coast. His improvements were even begun at that place, and had they been finished, and railway connection made with the table-land, Vera Cruz would have been left to the position it richly deserves, as a forsaken charnel-house of mouldering bones. Its roadstead is notoriously poor, affording no protection to the vessels coming there, although the famous

island of Ulua, containing a fortress costing $16,000,000, lies to windward. Nearly all the business is conducted by French and German merchants, who have risked their lives in their attempts at acclimatization, and are now richly rewarded by large and increasing fortunes.

Another thing to encounter, equally dreadful in its way with the fever, is the customs duty. Though it is an undeniable fact that the merchants of the country are robbed by wholesale, sometimes paying duties on goods to the amount of twice their original cost, yet the traveller is rarely molested. One should not fail to pay a deserved tribute to the Mexican customs official, who is ever courteous and attentive. He does not seem to bear that surly antipathy towards travellers which his brother official of the United States almost invariably displays. At the very ports of this country, before you have fairly made the acquaintance of the people, you will perceive in them a demeanor in most refreshing contrast to that of the *habitués* of the docks of New York. The traveller is permitted to enter all his personal apparel free of duty, as well as two watches, two revolvers, — in fact, everything that he really needs. A great many things he does not need may be taken in also, for the official's pay is meagre, and he loves to gaze upon the portraits of American worthies as depicted on the faces of our national currency Remember, however, that *cinco pesos* (five dollars) is sufficient to provide said official with many luxuries, as the rate of exchange is sometimes as high as twenty per cent in our favor. At the verge of the voyage, also, it would be well to caution the traveller that he must, if requested, state to the proper authorities his name and profession. This done, he may be at liberty to wander at his own sweet will. *Vaya con Dios!* — Go, and the Lord be with you!

The reader hardly needs to be reminded that Vera Cruz was virtually founded by Cortés; that his landing-place was on the city's site; that he here disembarked his troops, destroyed his ships, and entered upon the march inland that has made his name as famous as that of Alexander and from which he returned only when he had conquered the country.

VERA CRUZ.

"It was on Holy Thursday, of the year 1519," says the stout old chronicler, Bernal Diaz, whom we shall encounter at intervals throughout our journey, "that we arrived at the port of San Juan de Ulua, and Cortés hoisted the royal standard." He first landed on the island now crowned by the castle, where Grijalva had preceded him by a year. Though the first buildings erected by the Spaniards were upon this spot, yet the site was changed several times, before it was finally fixed at the present location in the year 1600.

Though Vera Cruz has suffered probably above every other city in Mexico, from the combined influences of plagues, pirates, and hurricanes, yet to-day it exists as a prosperous and well-conditioned city. As the only port on the eastern coast with any semblance of a harbor, it has monopolized Mexican commerce with foreign nations, and has always been opulent and animated. In olden times, like Havana and Cartagena, it was exposed to the assaults of pirates and buccaneers, into whose hands it fell in 1568, and again in 1683, when the pirates Agramont and Lorencillo sacked the city, and destroyed more than three hundred of the inhabitants. In 1618 a terrible fire swept over it.

In 1803 the first great road was commenced to the city of Mexico, there having been till that time little more than the footpaths worn by mules and asses coming down from the mountains. In the war for independence Vera Cruz was the theatre of strife between the opposing factions on many occasions, and in 1822 and 1823 was terribly bombarded by the Spaniards in the fortress of San Juan. The city bears the distinguishing title of "heroic," especially granted it by Congress, in honor of the many sieges it has gallantly sustained. In 1838 city and castle were attacked by the French without any provocation; and in March, 1847, suffered from a cannonade by the American fleet, the effects of which may be seen to-day. In 1856 a hurricane destroyed nearly all the shipping in the harbor; in 1859 Juarez, the republican President, landed here after his circular voyage around Mexico, and here he was besieged by General Miramon. In 1861 the "intervention" fleet made its appear-

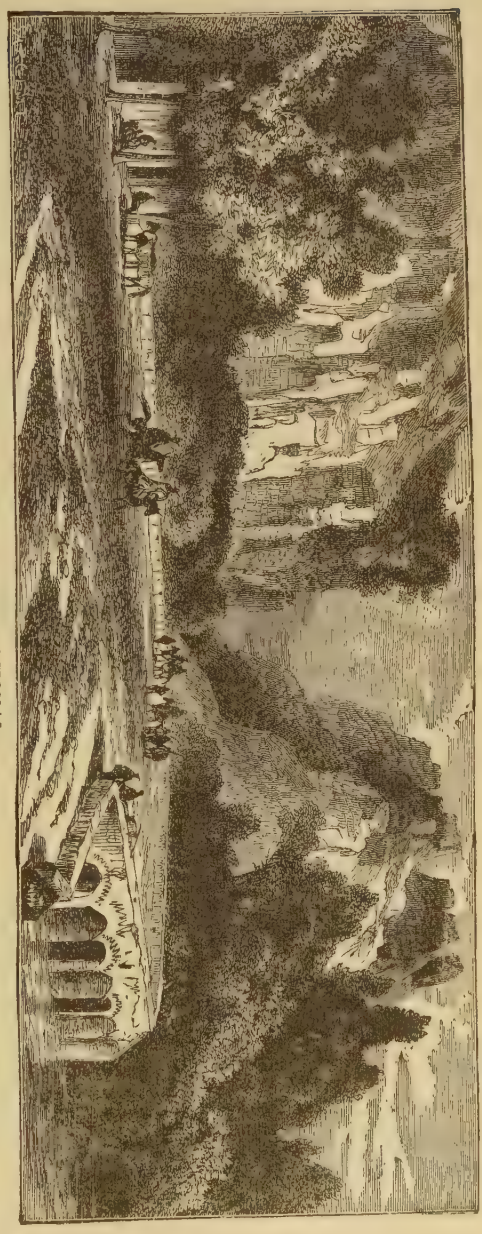
ance, and the city was in possession of the French and Imperialists until 1867, when the cause of freedom triumphed, and nothing has since occurred to interrupt its career of commercial prosperity.

The great State of Vera Cruz, of which this city is the commercial emporium, comprises the central portion of the Gulf coast of Mexico, and lies mainly in the hot country producing the fruits and vines of the tropics. Throughout its whole extent bordering the coast, it maintains a reputation for insalubrity, and is undesirable to live in. As a place of refuge from the heat and vomito, and the insect plagues that sometimes annoy the inhabitants of the coast, the town of Jalapa — pronounced Halápa — has an extensive reputation. Situated at a height above the sea of over four thousand feet, it is yet only seventy miles from Vera Cruz, and is reached in one day.

Having a few days to spare before leaving for the capital, I resolved to look upon this town in the mountains, celebrated for the beauty of its scenery, its women, and its flowers. At three in the morning the porter of the hotel drew me forth from the cell which the proprietor had assigned me as a bedroom, the night before, and led the way to the station, through streets that were dark and cool, but heavy with vile odors. We went by steam to San Juan, sixteen miles, over flat plains, and then changed for a tramway, which does the remaining sixty miles or so to Jalapa. At first we passed through a section of rich land; but as the ascent commenced, vegetation was parched and dry; yet there was everywhere a blossom, though few birds, and no butterflies. Three cars composed our train, divided respectively into first, second, and third class, and each one drawn by four mules. We made but one stop before reaching the Puente Nacional, — the National Bridge, — a magnificent viaduct, under which flowed a large river, where a stone fort commanded the approach for half a mile or so on either side. The old Spanish road, paved and curbed, over which General Scott marched from Vera Cruz to Jalapa, on his way to Mexico, is the same one we now take; but it is wellnigh abandoned by teams, nearly all freight passing over the tramway. Near this

bridge are the ruins of Santa Anna's hacienda, and along the road beyond on both sides of it, we passed numerous black crosses, erected over the graves of murdered men, buried where they fell. Forty miles on our journey brought us to Rinconada, where the mules were changed for the second time, and where a good breakfast was served.

In this small, out-of-the-way place, a sight greeted my eyes that rendered me for the moment speechless. I have already spoken of the great influx of engineers into this country; they crowded every steamer, and worried the lives out of every officer on board by criticisms of the management of the machinery. Having seen these knights of the theodolite on board ship,



EL PUENTE NACIONAL.

dressed in fine clothes, groaning under the weight of massive gold chains and chronometers, — men who shaved once every other day, got their boots blacked by the porter, and constantly threw out such like evidences of familiarity with a bank account, — having witnessed all this, I was not prepared for what I saw at that small station, where the mules kindly halted to allow us dusty travellers a chance to wash the dust out of our throats. It was this: a young man leaning against the doorpost.

Stalwart young men and doorposts are not uncommonly met with together, as many a young woman can testify; but it was not the young man especially, nor the doorpost, that riveted my gaze, but his costume. Beneath a great sombrero, with a brim little less than a yard wide, stood a woollen shirt and leather breeches, girt about with a pistol-belt full of cartridges, and stuck around with revolvers; a rifle leaned against the left arm, while the right hand of the owner of all this furniture was stroking a beard belonging to a countenance not at all unfamiliar. While I was beating my brains to recall where I had met this handsome ruffian before, summoning up Buffalo Bill, Davy Crockett, the ghost of Texas Jack, and all the rangers of the prairie that had crossed my track, this formidable being hailed me. He called me by name, and extended a palm horny with the blisters of two weeks in the field with compass and line. It was Smith, fellow-passenger on a previous steamer, who had exchanged a spick-and-span New York suit for the garb of the Mexican, and who wore girt about his loins the implements of warfare peculiar to the land of the Mexican; his countenance, which he was so careful to keep from being sun-burnt when on board steamer, was now a flaring red, and his hair, which he was wont to anoint with oil and part in the middle, was frowzy, and proclaimed by stray hairs from another species of animal, here and there, the color of the blanket he last slept in. As soon as I had discovered my friend in this disguise, and became convinced that it was not a highwayman lying in wait for my gold, we went in and cemented our friendship in the usual manner.

Fifty-five miles from the coast is Cerro Gordo, famous in the annals of the Mexican war, — a narrow pass between very high hills. Regarding the passage of Cerro Gordo, an English traveller reluctantly yields to our troops the following praise: "That ten thousand Americans should have been able to get through the mountain passes, and to reach the capital at all, is an astonishing thing; and after that, their successes in the valley of Mexico follow as a matter of course. They could never have crossed the mountains but for a combination of circumstances."

The road is everywhere commanded; there was no other trail, — hills and mountains on every side; so General Scott had to throw skirmishers along all these ridges before his army could pass. It is a long distance through, and must have been a perilous pass, with just width enough between high cliffs for the road to run. Not far from the narrowest portion, a trail leads off to the left, up to a ridge where cannon are yet found, and behind which Santa Anna lost his leg, — his wooden one. A few tile-covered, tumble-down shanties constitute the hamlet of Cerro Gordo, half a mile farther on.

The land is now of the uplands. Cerro Gordo guards the passage from the hot lowlands to the salubrious temperate region; streams now run by the track, good pasturage commences, and the way is all up hill. Some four miles farther we entered rolling upland pastures, where corn was growing, and a straggling hacienda was visible now and again. Beyond this the ridges are covered with hard woods, corn and sugar-cane grow side by side in the vales, fields of barley are spread invitingly about, and, as we gallop into Jalapa, we cannot but notice the groves of coffee trees by which the houses are surrounded.

At the Hotel Vera-Cruzana, a low building about an open court with fountains and flowers, we obtained good accommodation, at the termination of our ride of nearly twelve hours. Though generally surrounded by clouds of mist, Jalapa possesses a superior situation, with grand mountain views, and the combined vegetation of the high and the low country. Possessing also a temperate climate, it produces, it is said, the prettiest

women and loveliest flowers in Mexico proper. Its architecture is not remarkable, if we except the old convent, said to have been built in the time of Cortés, and unless we consider the manner in which the houses — all of stone — are perched on the hillsides. The gardens of Jalapa are noted all over Mexico, because in them are gathered fruits and flowers of every zone. Coffee is the staple product, but bananas and plantains, as well as corn, fraternize with it, and serve to give a character to these gardens that impresses one strongly with the possibilities of this climate.

In the forests, out of sight, on the eastern declivity of the cordilleras of Vera Cruz, flourishes that aromatic-fruited plant, the vanilla, — *Vanilla planifolia*. It is indigenous to the humid forests, and is carefully sought out and gathered by the Indians of the *tierra caliente*. The plant requires little care, but shade and moisture are necessary to its existence. The Indians, who yet reside in their primitive villages, are restricted in the harvest season by the *alcalde*, who apportions to each his share of the labor. The harvest begins in March and April, and continues two or three months. The pods are carefully dried in the sun, and packed for shipment with equal solicitude.

VANILLA.

Vanilla was assiduously cultivated by the Totonacs, who anciently dwelt in the coast region of Vera Cruz, and who

supplied the article to Montezuma and the Aztec nobles. Ruins of the structures erected by these Totonacs lie thick throughout the vast forests, in a line between Jalapa and the coast, going northward. Some of them have names, such as Misantla, Mapilca, and Papantla. The first named lies within thirty miles of Jalapa; but little is known of any of these groups, though the pyramid of Papantla was described eighty years ago. The base of this pyramid is an exact square, each side twenty-five metres in length, and its perpendicular height about twenty metres. It is composed of six successive stages, like the true *teocallis* of Mexico, and a great staircase of fifty-seven steps leads to the truncated summit. Hieroglyphics and strange figures, such as serpents and alligators, are carved in relief on the faced stones of each story, while a multitude of square niches, 366 in number, have given rise to the conjecture that they, in some occult sense, had connection with the ancient Toltec calendar; twelve additional niches in the stair toward the east may have stood for the "useless" or intercalated days at the end of their cycle.

To revert again to the charms of Jalapa; it is not my own unsupported testimony that I would offer. All travellers who have recorded their impressions of this city concur in praising its scenery and its *doncellas*. Says the Mexican adage, "*Las Jalapeñas son muy halagüeñas*," — "The women of Jalapa are very bewitching." And Mr. Ward (1827): "It is impossible that any words should convey an adequate idea of the country about Jalapa. It stands in the centre of some of the finest mountain scenery which any country can boast of." Humboldt was in love with it, and perhaps with the *doncellas* as well, for he had a very susceptible nature, this grand old man, — not old when he visited Mexico, but young and handsome.

The only drawback to perpetual enjoyment here is the drizzling rain, which the clouds from the Gulf, their burdens of moisture condensed by the cool mountain-tops, precipitate upon Jalapa. This drizzle is called the *chipi-chipi*. "Then," says the traveller Ruxton, "the sun is for days obscured, and the Jalapeño, muffled in his *sarape*, smokes his *cigarro*, and mutters,

'*Ave Maria purissima, que salga el sol.*' Liberally, 'Holy Mary, let the sun come out!'" Jalapa was formerly on the great highway between Vera Cruz and Mexico (the city), which, both below and beyond, was infested by the *salteadores*, or

RUINS OF PAPANTLA.

"gentlemen of the road." Of the past, however, are these tales, for the railway has superseded the diligence, and the poor highwayman must now labor with his hands.

Xalapa was a town existing when the first Spaniards marched up these mountains, as is stated in their reports. Beyond it is

the famous mountain of Perote, called by an Aztec name signifying casket, in Spanish *cofre*, from its rectangular shape, and near its base the town of Perote, where American prisoners were confined in 1847. Though we had looked anxiously for that plant from which the town derived its name, that tried friend of old-school physicians, jalap, — *Ipomœa Jalapa*, — we had not been successful. Only the name remains, though the plant may still be hidden in some dark ravine, or in the deep forest, like the vanilla, for which the coast country below was formerly celebrated.

My companions on the way up were the celebrated artist, Church, painter of "The Heart of the Andes," and his lovely wife, who were then on their return trip towards the United States, and who expressed themselves as delighted with the mountain scenery of the plateau. It was early morning as we left Jalapa on the downward trip, left it still crouching beneath the clouds that hovered over it, and scampered — or our mules did — down the hills. The mules were whipped into a gallop, and changed every three leagues, so that the journey to the coast was half accomplished ere the sun made it very hot.

"The worse the road, the harder ply the whip," is the motto of all Mexican drivers; so we sped through the pass of Cerro Gordo at an awful rate, taking sharp curves and spinning over its tortuous road at top speed. Beyond Rinconada, we descended the steep grades in a cloud of dust, racing with the second and third class cars, the heat growing more and more oppressive every mile; and in this manner we ran into the hot country again, and on the morrow took the train for the capital.

XI.

FROM COAST TO CAPITAL.

MEXICO lies at the meeting-place of two zones, — the temperate and the torrid; and from its geographical position, combined with its varying altitudes, possesses a greater variety of soil, surface, and vegetation than any equal extent of contiguous territory in the world. Basking in the sunshine of the tropics, her head pillowed in the lap of the North, her feet resting at the gateway of the continents, her snowy bosom rising to the clouds, she rests serene in the majesty of her might. She guards vast treasures of gold and silver, emeralds and opals adorn her brow, while the hem of her royal robe, dipped in the seas of two hemispheres, is embroidered with pearls and the riches of ocean.

Mother of Western civilization! cradle of the American race! a thousand years have been gathered into the sheaf of time since her first cities were built. When the Norsemen coasted our Northern shores, she had towns and villages, and white-walled temples and palaces. When the Pilgrims landed on Plymouth Rock, a hundred years had already passed since the soldiers of Cortés had battled with the hosts of Montezuma. Three centuries, and more, have rolled by since her conquest, and into the treasury of Spain, through this same city of the True Cross, she has poured golden streams and silver floods of royal revenue. Her ten millions of people occupy one million square miles of territory, having a length of 1,800, a breadth of 800, and a coast line of 5,500 miles.

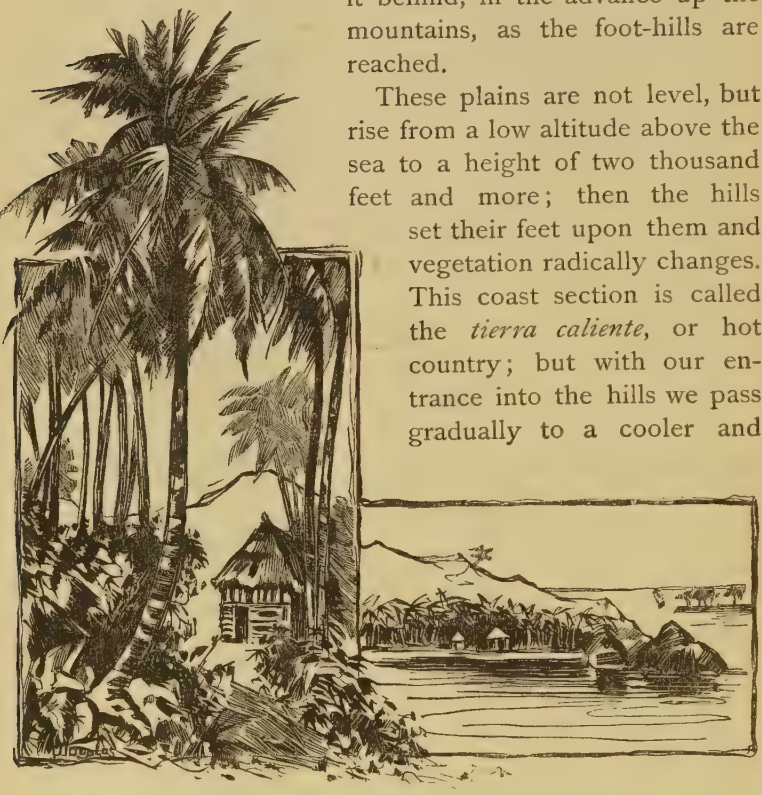
While yet upon her coast, let us glance at the country we have come to visit. Rising above the limit of her mountains clothed in snow, let us take a bird's-eye view of this great "central continent."

The mountain chain that is so depressed at the Isthmus of Tehuantepec divides into two as it reaches Mexican territory, forming the eastern and western cordilleras that run along either coast. These great mountain ranges, then, guard an immense central plateau, supporting some of the highest pinnacles on this continent.

Between the bases of these ranges and the coasts there is a broad expanse of comparatively level land, known as the *savanas*, or *llanos*. This portion of the country is hot, and in the main unhealthy. The great plains are characterized by general aridity in the dry season, and are partially submerged in the season of rains. Covered with coarse grass, they are the resort of great herds of cattle, but their vegetation consists principally of stunted, prickly, and thorny trees. Like oases in this grassy desert are the spots fertilized by some stream or lake, where the trees and plants are of the tropics, and all the fruits of the hot zone are produced in abundance: such as cacao and coco, vanilla and spices, sugar-cane, bananas,

oranges, and mangos. To impress upon one the character of the vegetation of the coast, a group of coco palms must be imagined, waving their long leaves wildly in the wind or shining like gold in the sun. Essentially a littoral product, the coco-palm is rarely found far inland, and the equally beautiful and tropical plant, the banana, leaves it behind, in the advance up the mountains, as the foot-hills are reached.

These plains are not level, but rise from a low altitude above the sea to a height of two thousand feet and more; then the hills set their feet upon them and vegetation radically changes. This coast section is called the *tierra caliente*, or hot country; but with our entrance into the hills we pass gradually to a cooler and



PALMS OF THE COAST.

more salubrious climate, called by the natives *tierra templada*, the temperate region. Here, indeed, Nature manifests herself in her grandest productions; vegetation begins to be profuse; the huts of the natives, the great and towering trees, the rocks, the entire surface of the soil, are covered with gay flowers and

luxuriant vines: orchids, oleanders, roses, honeysuckles, and convolvuli "make glad these solitary places," and tall yuccas, palms, and tree-ferns make them picturesque.

Rising higher and higher, the eye is bewildered by the vast number of vegetable forms that are massed upon the trees, the wild pines, air-plants, and hosts of ferns, bignonias with tints of sea-shells, orchids with spikes of blossoms, dragon plants, and an entire world of creepers and parasitic vines, unknown to any but the skilled botanist. Thus we pass through a zone unknown to us of the North, that has also forms not found in the low tropics. It is called the "temperate region" because of its delightful climate and equable temperature; but it not only combines the vegetation of two zones, but also the heat and moisture of the lowlands with the cool breezes and salubrious atmosphere of the temperate country.

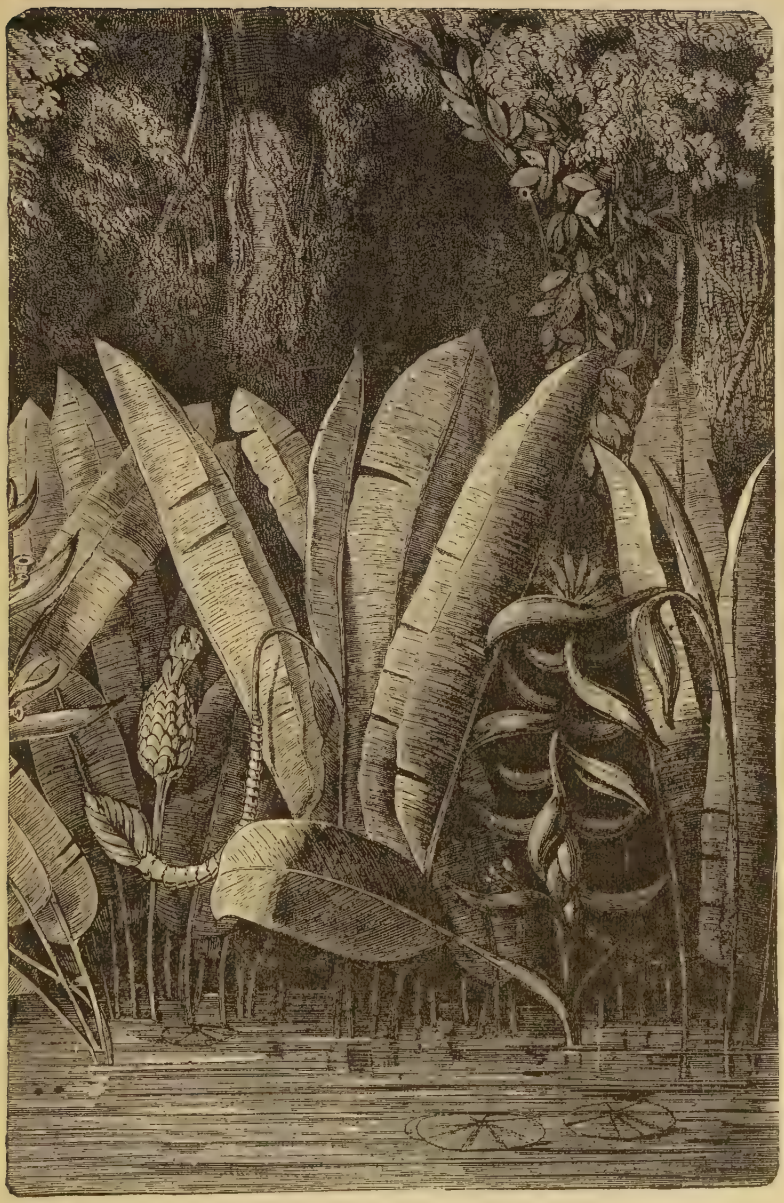
Having traced the lapping of the two girdles in other places, in the lesser islands of the West Indies, and having noted and admired the blending of the two zones in this middle ground, I had long ago given this region (in imagination, before it passed under my eyes) the name of *Tropic Border-land.* The flowers here do not lose their scent, as some imagine; the birds are tuneful, — though some would have us believe to the contrary, — and the annoying insects less abundant than below. Paradise, if it can be located on this earth, will occupy a position in the *tierra templada*, in some belt half-way up a tropic mountain, whether in Mexico or in South America, in the West Indies or in the Himalayas, where altitude confers all the favors resulting from a change of country in other lands. There is no deadly disease here, as in the coast country; at an elevation of three thousand feet above the sea there is little danger from the *vomito*, and, except for local causes, other fevers seldom molest the inhabitants.

As far up as four thousand feet the sugar-cane, coffee, rice, tobacco, and banana may be raised; and all the fruits of the world, both the new and the old, may be produced here in greater or less perfection. Beyond this, vegetation is less luxuriant; the grains of the Old World, as wheat and barley, flourish best

at an altitude of six thousand feet; here the pines commence, though oaks were met with two thousand feet below, while corn, the great tasselled chieftain of the West, being on indigenous soil, has marched with us all the way from the coast, and climbed with us up the sides of the mountains. At about seven thousand feet, the great plains are reached that lie between the eastern and western cordilleras, and cover an area of some fifteen hundred miles in length by five hundred in breadth. Here cactus and aloe, cypress and cedar, proclaim another zone, the *tierra fria*, or "cold country," where not a trace of tropical vegetation exists except in the equivocal cacti and maguey. Shooting above the plateau, the great volcanoes, Orizaba, Ixtaccihuatl, and Popocatapetl, lift their hoary heads high into the clouds, and if we ascend their sides to their summits, we shall have traced vegetation to its last limit, — from the palms, bananas, and sugar-cane of the heated coast, through the oranges, apples, peaches of the temperate belt, the wheat, barley, aloes, the oaks, pines, and hemlocks of the *tierra fria*, to the last starry cryptogam that flecks the borders of the eternal snows!

In no country in the world can you pass so rapidly from zone to zone, — from the blazing shores of the heated tropics to the region of perpetual winter, from the land of the palm and vine to that of the pine and lichen, — for in twenty hours this can be accomplished, and the traveller may ascend a snow peak with the sands of the shore still upon his shoes.

In going over the Mexican railroad, one witnesses a perfect exposition of the products of the entire country, for it cuts the backbone of the continent, and climbs from hot, unhealthy coast to frigid mountain-top. Fancying yourself again in Vera Cruz, and that you have seen the few objects of interest, — the plaza, the municipal palace, custom-house, convent, and library, — you are awaiting anxiously the train that leaves for the capital. The heavy cars roll finally out of the station, across the line of ancient fortifications (now levelled), and over the broad *llanos* that border the coast. As we speed over these plains, we may, if the moon be shining, obtain a parting glimpse of the domed and turreted town, set in a framework of tropical



IN TIERRA CALIENTE.

vegetation, and the tropic night manifests itself, not only in the brilliancy of its stars, but in the myriads of its fire-flies. These insects of the night may remind us of the story related by the Spanish chroniclers, of the army of Narvaez, which was put to flight by an apparition of these fire-flies, they mistaking them for the lights of an approaching enemy.

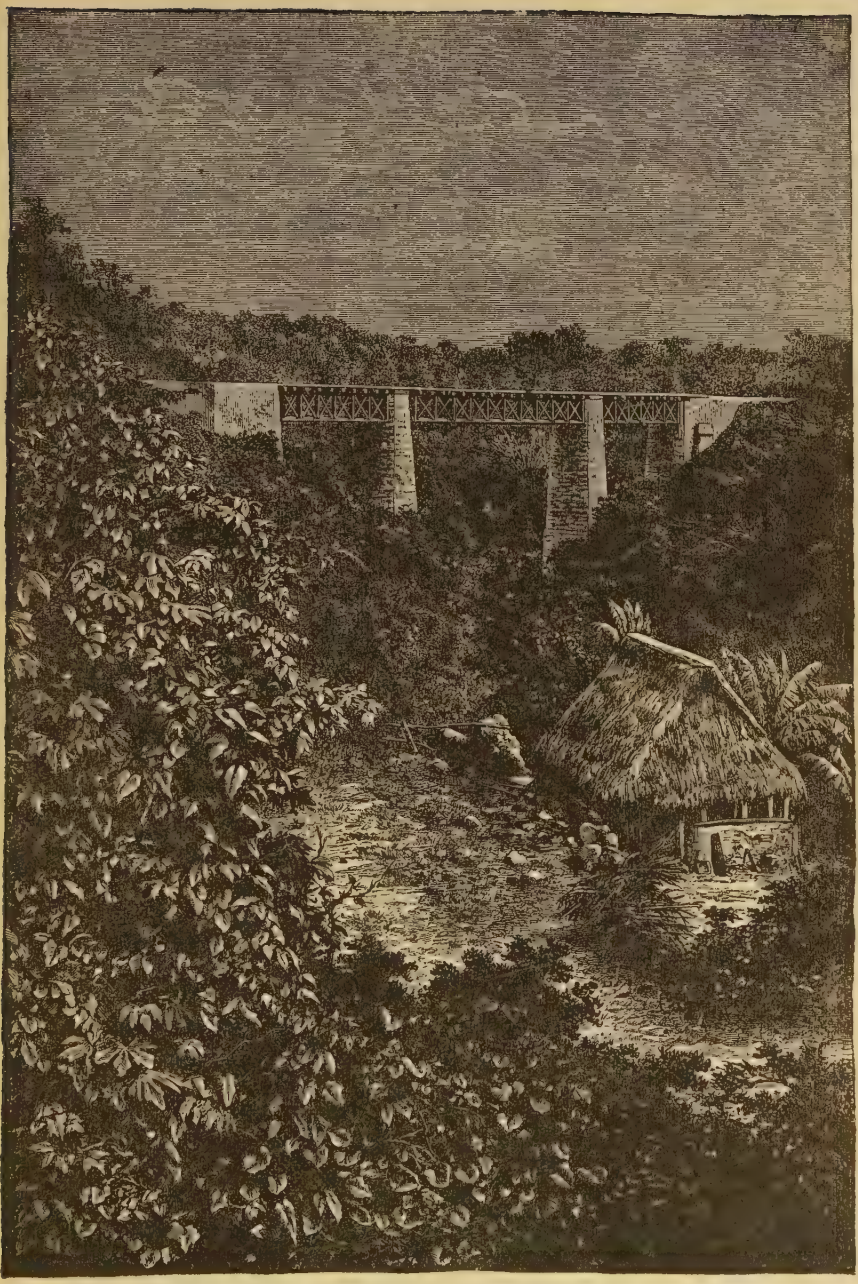
The ascent commences almost at the very gates of Vera Cruz, and at the station of Tejeria, a place noted in the history of Mexico, nine and one half miles distant, we are one hundred feet above the sea. There are no villages on the plains, and few houses except the ranchos of the cattle-owners, and the hamlet of Purga, which reminds us emphatically of the drastic cathartic properties of the indigenous jalap. Passing through Soledad, a hamlet of a few hundred people, the first station of any importance is Paso del Macho, containing fifteen hundred inhabitants, and situated 1,560 feet above Vera Cruz. Three miles beyond this station we cross the bridge of San Alejo, 318 feet in length; at Chiquihuite, another, 220 feet long; and at Atoyac roll over the famous bridge of that name, having a length of 330 feet, spanning the Atoyac River, which empties at the port of Vera Cruz, fifty-three miles distant. Like the plains, which are intersected by deep *barrancas*, at the bottom of which, in the rainy season, flow turbid rivers, these lower hills are cut up by numerous ravines, rich in all the charming vegetation of the tropics, but offering almost insuperable obstacles to railway construction. Beyond Atoyac the ascent grows steeper, the grades continually increasing, and the course of the railway necessarily becoming circuitous, in order to overcome it. Rank grow the wonderful plants on either side, tumultuous rush the rivers from mountains clothed in verdure, each mile adding, if possible, to the wealth of the vegetable kingdom concentrated here, until it reaches perfection in the valleys lying about Cordova, twenty-seven hundred feet above the sea and sixty-five miles from the Gulf. It is here that the traveller first allows himself to take a long, free breath, without fear of drawing in the germs of yellow fever or malarial disease. The scenery delights him, and he would gladly stop awhile in this region,

but he has a through ticket for Mexico and cannot; and at the time of his departure from the country he forgets Cordova until he reaches it again in passing through, and then regrets, too late, that he has not given it a few days' time.

The town of Cordova, being the central portion of the coffee region of the east coast, situated amidst scenery that may be taken as typical of this zone, should not be passed by without a brief description. It was founded in 1618, becoming at one time a very flourishing city, with numerous sugar haciendas, as well as numberless coffee estates; but it has greatly declined in importance. The entire coffee product amounted, in 1881, to little more than 20,000 arrobas, of twenty-five pounds each, while the amount of tobacco is estimated at from 150,000 to 200,000 arrobas. The town lies nearly a mile from the pleasant station on the Mexican railroad, with which it is connected by an excellent tramway, passing through gardens and coffee groves. The central plaza, though small, is an exquisite little garden of palms, flowers, banana plants, and orange and lime trees, kept in excellent order. It has a monument, in the centre of a large basin containing the water of the town, in memory of the patriots of Cordova who fought in the revolution against Spanish dominion; it is intersected by smooth walks, and has elegant iron seats at convenient stations. A large church opposite, though evidently of ancient date, is being repaired and somewhat modernized.

The broad open space about the plaza is used as a market, there being no other, and here the market men and women sit squatted on the stone pavement. Sunday is the great market day, for all the Indians come in from adjacent villages and take possession of the square. Many of them are pure Indians, and dressed in peculiar costumes, each tribe or village sporting a different color. They meet amicably, and generally get through the day very well; but it is when going home at night, with their skins full of *mescal*, or poor rum, that trouble occurs, and rarely a Sunday passes without several deaths.

With the reader's permission, I will anticipate by a few months my actual visit to Cordova, and bring in here, in the



BRIDGE OF CHIQUIHUITE.

sequence of our line of travel, the results of my observations in the coffee district. The coffee region of Mexico is much more extensive than is generally supposed, extending from the coast into the hills, even so high up as five thousand feet above the sea. Though the plant grows well along the coast, (as witness Liberia, where it springs up almost at the water's edge,) it flourishes best at an altitude of from one thousand to three thousand feet. This is in sections that are well supplied with rains, for warmth and moisture, so necessary to all vegetation, are required by the coffee in a greater degree than by other plants. From the fact that the elevated districts are more salubrious than the lower, and that the best coffee is produced at the highest altitudes, — within a certain limit, — we find the largest groves among the hills and mountains.

Very fortunately, at the commencement of my investigations, I fell in with an extremely well-informed gentleman, Mr. Hugo Finck, who had resided here nearly twenty years, a naturalist of deep and inquiring mind, speaking four languages, thoroughly acquainted with the whole coast and mountain country of the Gulf, and an old "coffee raiser," besides. His plantation lies about two miles from town, reached by a road in a not exactly delightful condition. I might remark here that the roads of Mexico are, as a rule, in a horrible state. The government relies so much upon the railroads to connect all important places that the carriage roads and bridle paths are neglected. Take one of our country lanes, cut ditches across it, dig deep pits in it, demolish a stone wall and cast into the centre of it, run a few streams through it, and slush the whole over so that one can hardly keep his footing on it, and you have a Mexican country road in the rainy season.

But when we reached the outskirts of the town, and the road lay between tall hedgerows of flowering trees and tangled vines, we found the air perfumed with spicy odors, and enlivened by the chirping of birds. After crossing a couple of streams, we finally reached the plantation, and walked between long rows of coffee plants. They varied in age from one year to ten, but all above two years were well laden with fruit.

I have considered well all the various enterprises, agricultural and industrial, possible in Mexico, and have come to the conclusion that, if one must come out here and labor, — if he feels a decided "call" to till the soil, — old Mother Earth will be about as generous to him in coffee culture as in anything. Whatever one embarks in, he must wait some years to see his money come back; if he choose the raising of cattle, he must wait for them to grow, for at least five years, and run the risk meanwhile of their dying or being stolen; and, besides, they can only increase in certain proportion; no cow can bear more than one or two calves a year, and no calf will grow any faster than he pleases, unless you stuff him full of expensive meal and grain. With corn, wheat, and barley, you must have hundreds of acres of land, must prepare it carefully, and hoe and weed or dress it several times during the season; and, after the crop is cut and stacked, your land is there again, barren and exposed as before, and you must go through the same process over again.

With coffee, you plant your land once, and that suffices for several years. Looking at it from my point of view, — the lazy man's outlook, — I can see nothing so inviting as coffee culture, unless it be a fat "living" in an English country church. In the first place, you buy your land, of which there is a fair supply yet to be had, at about ten dollars per acre. The soil here is mostly strong, clayey loam, with a heavy top deposit of vegetable mould, very rich and lasting. It is easily cleared, and, if not on a steep hillside, where the perpetual rains wash the humus away, retains its fertility a long while. After clearing, the plants, from six months to a year old, are set out in rows eight or ten feet wide, and about six feet apart in the row. Bananas or plantains should be set out in sufficient number to entirely shade the young plants; these are quick-growing, and produce great bunches of fruit the second year, so that a small income will be coming in from them before the coffee begins to bear. Corn and tobacco may be planted among the trees, if one is in a hurry to obtain returns from the land while his principal crop is growing; but it will be far better merely to

keep the weeds down, till the land thoroughly without planting, and do everything to enrich the soil instead of exhausting it.

Coffee two years from the seed is frequently seen here, though the trees rarely bear much before reaching the age of three years, and are not in profitable bearing till four or five. But I have seen sturdy little trees, with their slender branches well bunched with fruit and flowers at between two and three years of age. Like the orange of Florida and the lime of the West Indies, the former of which will sometimes bear at two years from the bud, and the latter at two years from the seed, little reliance can be placed upon a crop at less than three or four. The coffee is in advance of them all, however, in point of time, for, while the orange hardly reaches maturity before its tenth year, coffee will repay its owner in its sixth or seventh. An advantage in favor of coffee over orange culture is, that here there can be combined with it the raising of every other tropical fruit. Here the mango lifts its solid green head above the plantations, though giving a shade too dense to be desirable, as well as the avocado pear, and even the peach and walnut.

In Mr. Finck's *cafetal*, or coffee grounds, we may see as great a variety of trees and smaller plants as is usually found in a *jardin des plantes*, for he is an accomplished botanist, and knows every plant in this region. He is especially devoted to orchids, and has collected here the rarest species, from the snow line of Orizaba to the hot lands of the coast, keeping them in great beds in the shade, and wired to the trees with densest vegetation. For a few years past he has been introducing the cinchona, and is the first one who has done it with success. From this tree he expects eventually to derive greater profit than from his coffee. The cinchona is not indigenous to Mexico; I am moved to say this because of an article in a Western paper describing the forests of the lowlands as being full of it. In that article, detailing in glowing terms the resources of Mexico, I found several products of the country that no botanist has discovered there yet.

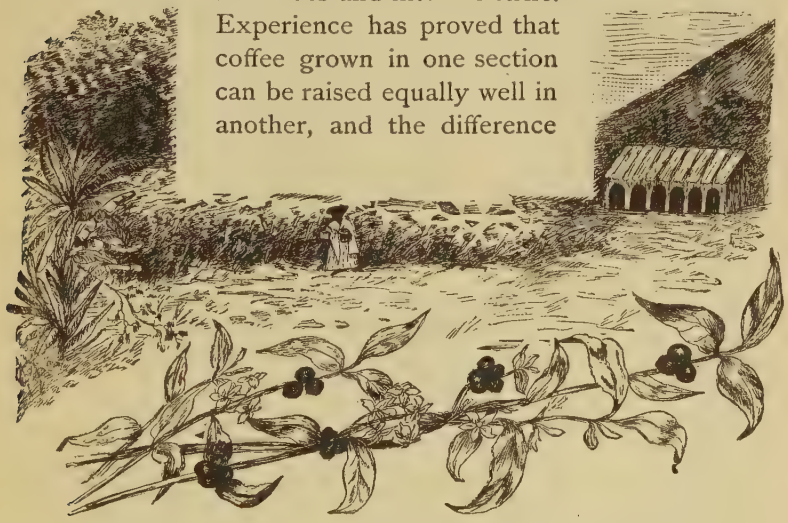
It is a delightful zone that combines climate and soil so har-

moniously that you may raise in it the fruits of any two, — of the tropic and temperate. It reminds me of the coffee region of the West Indies in vegetation, climate, scenery, and even in birds. A corner of Mr. Finck's large estate is bounded by a brook, which has hollowed a segment from a round hill, leaving a perpendicular wall of earth adorned with ferns, with interesting carludovicas, antheriums, and tree ferns; the last waving their feathery foliage in the air with a grace inimitable. There are a score of nooks equally charming with this, which I visited in company with the learned botanist, but will not describe, because there is a young man waiting for us whose experience, though short, may prove of greater interest.

For $3500 this young man (who, by the way, came from Illinois) has bought about fifty acres of beautiful land, more than half of it planted with trees, and in good condition. This is about the minimum, if one intends devoting himself to coffee alone, that can well support a family and prove profitable. Even then, this number of acres should be well cultivated, with very little waste land. One hundred acres would be better, in order that fifty or more might be in bearing all the time. With this young man I went out to look at his recent purchase, which lay about a mile from town, near enough to avail of all the conveniences of transportation and markets, and far enough to avoid the depredations of boys and yet get a good taste of the typical Mexican road. As we entered, we found ourselves surrounded by trees four and five years old, about five feet high, every branch loaded with glossy green bunches. The coffee, as every one knows, is not a bush, but a tree, that will grow to a height of twenty feet if permitted, but is nipped in at about six feet from the ground, thus gaining strength for the branches and main stalk, and presenting a surface from which the coffee is easily picked. Though the tree is constantly flowering and developing fruit, the proper harvest season is from November to April, — a little prolonged if carried into the latter month. The green berries turn bright red, are gathered, dried on level floors of stone or plaster in the sun, separated and hulled, and then stored. According to statistics prepared for the State Fair of Vera

Cruz, held in Orizaba in the autumn, the export of coffee from the canton of Cordova for 1880 was 5,500,000 pounds; for 1881, from 7,000,000 to 7,500,000 pounds! The area in coffee trees is constantly being added to, and the trees themselves are growing rapidly, and producing at the present time a crop yielding not far from 10,000,000 pounds. The trade is largely in the hands of New Orleans parties, who buy the berry at less than ten cents per pound.

Much is being said regarding the superiority of the coffee from Michoacan, but Michoacan is a far country, a country of volcanoes and internal strife. Experience has proved that coffee grown in one section can be raised equally well in another, and the difference



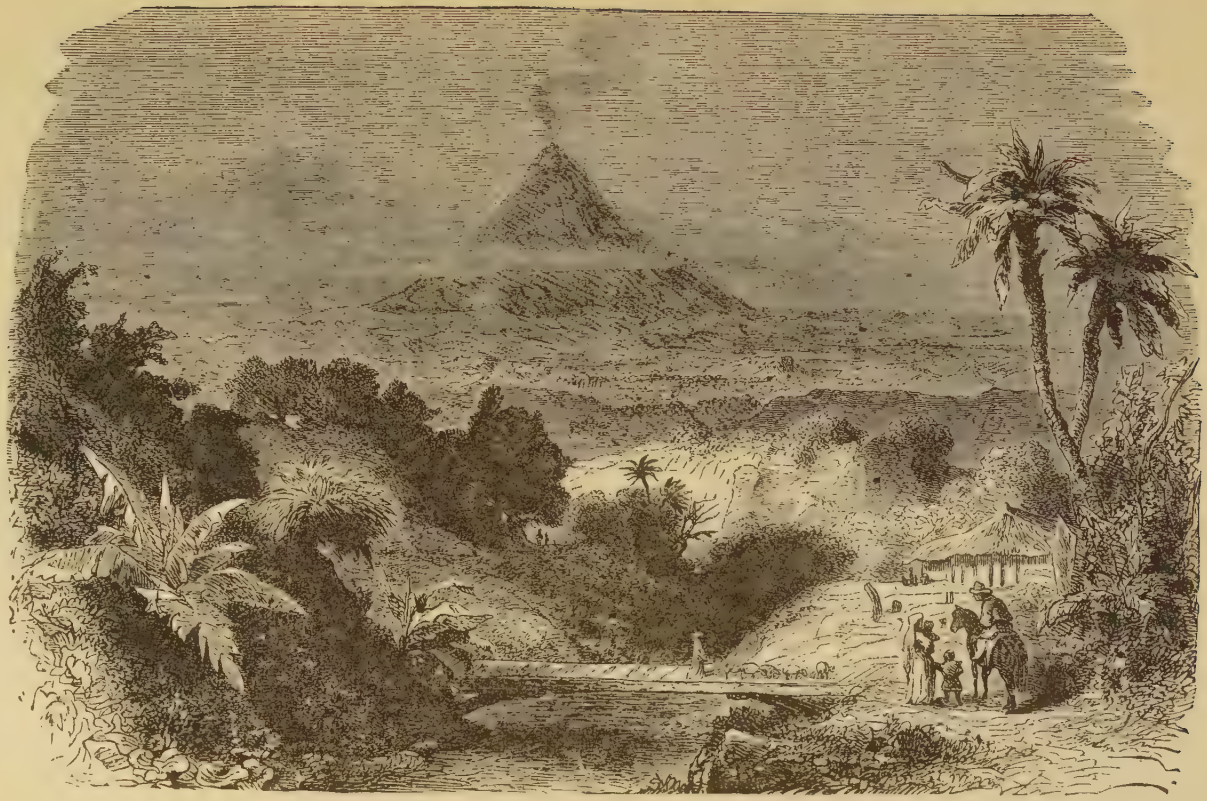
IN A CAFETAL.

between the dry climate of Michoacan and this may be obtained by a change of altitude. Coffee introduced from Liberia into the West Indies flourished just as well as it did in Africa. The planters here are not insensible to the advantages sometimes resulting from a change of seed, and are experimenting with several varieties, chiefly with some from Colima. I must confess that I never tasted worse coffee than I got in Mexico; and if it is the result of my taste having been depraved by chicory, then give me chicory.

I left my friend standing in his coffee grove, surrounded by trees high as his shoulder, far as the eye could reach. He was justly proud of his purchase, and the feeling of envy came as near having a lodgment in my breast as possible. Aside from building a house and superintending the setting out of new trees, he has little to do henceforward but to gather his crops and count the receipts. Five years is not a long time to wait, especially as small crops can be raised in the interval, which will more than pay for the labor. Five years is not long, when every year adds an appreciable height to the plants, and the second year brings spicy flowers, like bunches of arbutus, with fruit glossy as wax. The monotony of the seasons may be varied by studying out and planting the various vegetables that will grow at different times of the year. One with a taste for botany need never be at a loss, having a vast storehouse all around him in the mountains and valleys, and no winter to destroy such plants as he may collect.

We stood upon the highest part of a coffee-crowned knoll, with hills and valleys all around us, and the mighty peak of snow-crowned Orizaba towering above the clouds behind us, and planned the house, and the avenue, and the observatory that should give at a glance the entire beautiful valley. This is the bright side of the picture, and I hope no other will be presented, either to my new friend, or to any who may follow him.

The train from the coast reaches Cordova as the first rays of morning give the snow cone of Orizaba a soft rose tint. Here the people come out with coffee, fruit, and native decoctions, fondly hoping that the traveller will buy of them and break his fast. Five miles beyond the station, the train runs more slowly, as it is approaching one of the most dangerous passes on the road, and, turning sharply to the right, enters the weird and wonderful barranca of Metlac. Running along the brink of this tremendous ravine for a while, we suddenly dart to the left and cross the bridge which spans it, at a curve of three hundred and twenty-five feet radius, ninety feet above the foaming river below. Five tunnels are in sight on the opposite side before the bridge



ORIZABA, VOLCANO AND PLATEAU.

is crossed, dark holes that pierce the mountain buttresses, the first of which is taken at the end of the viaduct. Three minutes from the time we leave the right bank of the barranca we are running a parallel course, diving in and out of successive tunnels, having plunged into an immense *cul-de-sac*, as it were, on one side, and found our way out on the other. At times there are curves on which we can see the train from end to end, and all the time we are continually ascending.

From the last of the tunnels we emerge upon a great table-land, and look out over broad stretches of cultivable acres, peaceful plains dotted with cattle, billowy ranges, spurs and peaks, and, above all, the great volcano, smiling serenely upon us. How beautiful are these high plains! Right in sight is the land of snow, before us and behind us the land of tropic heat. The valley into which the great ravine opens is a vast field of coffee, rice, sugar-cane, tobacco, and corn. The area between Cordova and Orizaba is, perhaps, the most fertile and desirable to live in, in Mexico. Here the products of three zones mingle; corn and coffee interlace their leaves, peach trees lift their heads above fields of tasselled cane, and grapes and mangos grow together in blooming gardens. With a stable government and with thorough cultivation, what might not this territory attain to! The scenery is magnificent; elevated knolls along the road give desirable spots for building sites; great sugar estates are yellow with cane, good as any raised in the West Indies. Nothing is wrong or misplaced except the inhabitants, who have disfigured the face of nature with their vile habitations.

And these habitations, by the material of which they are built and their manner of construction, indicate of themselves the increase in altitude and consequent depression of the thermometer. In the *tierra caliente* they are constructed of bamboo and light poles, open alike to wind and sun, for a slight shelter suffices for the tropics. In the *tierra templada* the wood used is heavier, and the structure more durable, while the better classes, especially in the towns, are of mud or stone. On the uplands of the *tierra fria* the dwellings are of *adobe*, or sun-dried brick, and of stone.

The environs of Orizaba appear beyond, lovely so far as nature can make them, with gardens of coffee, lanes running beneath large trees, and red-roofed houses nestling beneath broad-leaved plantains. This valley, though situated four thousand feet above the sea, is yet within the limits of the *tierra caliente.* It is a trifle cooler than Cordova, less subject to fevers and to attacks from the vomito, and has inviting hotels, — inviting for Mexico, — streams, cascades, bathing-places, and good shops and markets. The climate is hot and humid, and the mosquitoes alert and vigorous; hence, the beneficial activity of the latter prevents the visitor from experiencing the enervating effect of the former. There are many churches here, all of them interesting,

A NATIVE HUT.

several factories and mills, and the great machine-shops of the Mexican road, where engines are repaired and built.

The city of Orizaba, eighty-two miles from Vera Cruz, and containing about 13,000 inhabitants, is said to occupy the site of a village founded a long while ago, and conquered by Montezuma in 1457. Its original Aztec name, says one writer, was *Ahauializapan*, or Joy of the Water, which is a slight misnomer, since the inhabitants not only do not take joy in the water here, but are indebted to it for much dysentery and fever. During the French intervention it was occupied by those interlopers from Europe, and was a favorite resort with Maximilian during his brief reign in Mexico. Mount Borrego, where one hundred

French zouaves are said to have routed five thousand men of the Mexican army, is a conspicuous object near the town. The station here is the best on the road; it is half a mile distant from the town, and connected with it by road and tramway.

Above Orizaba the rails are drawn over fertile fields and wooded hills, through a fine country, rapidly growing poorer, where they run straight away towards the hills, and then make a decided dash for the mountains. In half an hour from the small station of Encinal, we enter the gloomy gorge known as *El Infernillo*, the Little Hell, passing over dizzy banks and bridges, above a stream which has worn a deep chasm in the trap rock. A black cross on a projecting point indicates death and danger, and reminds us of the fate that awaits him who slips from the track above. Far below, gazing downward from the dizzy bridge we are crossing, upheld by slender columns, we can see a little stream dashing into a black and dismal ravine, where it is lost, until it reappears on the plain we have left. Plunging into a tunnel, we emerge at the other end into scenery radically different, for we have now reached the region of pines, more than five thousand feet above the sea. A little valley lies spread before us now, an emerald embosomed in the mountains, called *La Joya*, the Jewel, in the centre of which is the station of Maltrata. Just as the whistle sounds for this station, the volcano of Orizaba bursts upon the view again, its whole snow-white summit rising majestically above the hills. The train is met by hundreds of Indian girls and women, holding out baskets of fruit, such as peaches, pomegranates, oranges, pine-apples, avocado pears, and *tamales*, or meat smothered in corn paste, cakes, tortillas, and bottles of pulque; everything, in fact, that the Mexican taste (limited) is supposed to crave. Peach trees line the track at the station, and all the houses have gardens about them, as this is a suburb, and the town extends farther into the valley.

Beyond this the track literally *climbs* the mountain, approaching it by great curves. At La Bota, where the engine stops for water, and where they take on a supply of wood, — pine wood that gives out a resinous odor, — the down train can be

ween creeping slowly on its course, held in check by the powerful engine. All the way up the hills you can trace the road, its serpentine trail drawn in and out the valley and along the ridges, ever and anon doubling upon itself, but ever climbing. At last we reach another water-tank, perched at the crest of a ridge, after having ascended over a grade of nearly five per cent through rock cuts hung with ferns, severing the backs of the buttresses that come down from the mountains above, and through tunnels that pierce them one after another. Looking down upon the hills and dales clothed in pines and oaks, we might imagine ourselves in New Hampshire, but we are already higher than Mount Washington!

Here the view is of surpassing beauty. Far to the left the volcano rears its white peak above ranks of sombre pines, and right beneath is a variegated landscape, alternate groves, copses, fields, and garden spots, through which is traced the sinuous line of the iron road. Beyond the tank is a narrow iron bridge, ninety feet long, and spanning a chasm that ends only at the valley below. If any support should snap here, nothing could save us from being precipitated two thousand feet downward. At the bridge the fair vale of Maltrata again lies before us, though ten miles distant by the track, and nearly three thousand feet below. Glorious are the views of Maltrata obtained as the train rushes in and out the cuts. The valley is perfectly flat, divided into squares by hedges and walls, with every shade of green, with houses and trees most picturesquely grouped, waving with grain in places, and golden where the harvest is done. Exactly in its centre is a red-domed church, and a square with portals and fountain; every inch is cultivated beyond the town, where verdant valleys run up into the hills, the slopes of which are yellow with grain and brown with upturned earth. Hill is piled upon hill, stretching away to the horizon till lost in purple haze. We are cutting the crests of a hundred ridges, crawling along the summits of mountains, now peering into dark chasms a thousand feet deep, containing streams drawn fine as silver threads, now penetrating forests of pines, black and vast.

Crossing the last terrible bridge, on a curve, as at Metlac, and diving through the last dark tunnel, we finally reach *Boca del Monte*, the "Mountain's Mouth," at an altitude of seven thousand nine hundred feet above the sea. In the last thirteen miles we have climbed over three thousand perpendicular feet; a stream, that we saw in the valley below as a foaming river, is now so narrow that a boy could leap across it, for we are at its source.

We are now fairly out upon the great upland plateau; we have passed successively through *tierras caliente* and *templada*, and are now in *tierra fria*, the cold country. After dry and bushy hills, we pass over a plain swelling into knolls covered with open oak woods, alternating with green, flower-carpeted pastures. In the centre of an emerald plain is a blue pond, with sheep and cattle feeding on the slopes around it. A few miles farther, at a point indicating one hundred and eleven miles from Vera Cruz, and nearly eight thousand feet above the sea, is the station of Esperanza. A long stop is made here for the passengers to get breakfast, which is abundant and well cooked. Here, also, the great double-ended Fairlie engine, the steam giant that has drawn us over the tremendous grades below, is taken off and replaced by a lighter American one, as the plain now extends the whole distance of one hundred and fifty miles to the capital.

Esperanza is the Spanish equivalent for Hope. The station bearing this name is situated at the beginning of a vast sandy plain, producing thin crops of grain; and as there are no other buildings than those of the station, and nothing of interest nearer than the volcanic foot-hills of Orizaba, the unfortunate traveller who is compelled to stay here for a day or two, realizes why it was called Hope, — because he hopes to find a better place beyond, and is certain he can enter none drearier. The best view of the great volcano of Orizaba is here, — that snow mountain which has been dancing attendance upon us since long before we reached the shore, and playing hide and seek with us behind the hills, all along the line. Now he is unmasked, for he shoots up from the very plains we are on,

in the morning cold and glittering, in the evening hidden by clouds.

The peak of Orizaba, according to Humboldt, attains to a height of 17,378 feet. Though not so accessible as Popocatapetl, which is four hundred feet higher, Orizaba has been several times ascended. The first ascent was by a party of American officers, in 1848; and the second, by a Frenchman, Alexander Doignon, in 1851, who found a staff with the date 1848 cut into it, and the tattered remains of a United States flag. Till then it was regarded as wholly inaccessible, and it was not until the gallant Frenchman made a second attempt (which nearly cost him his life) that the wondering natives could credit him, and award the honor of the first achievement to the modest Americans. The starting point for the peak is from the little village of San Andres, near the base of the cone, some of the inhabitants of which obtain ice from the summit.

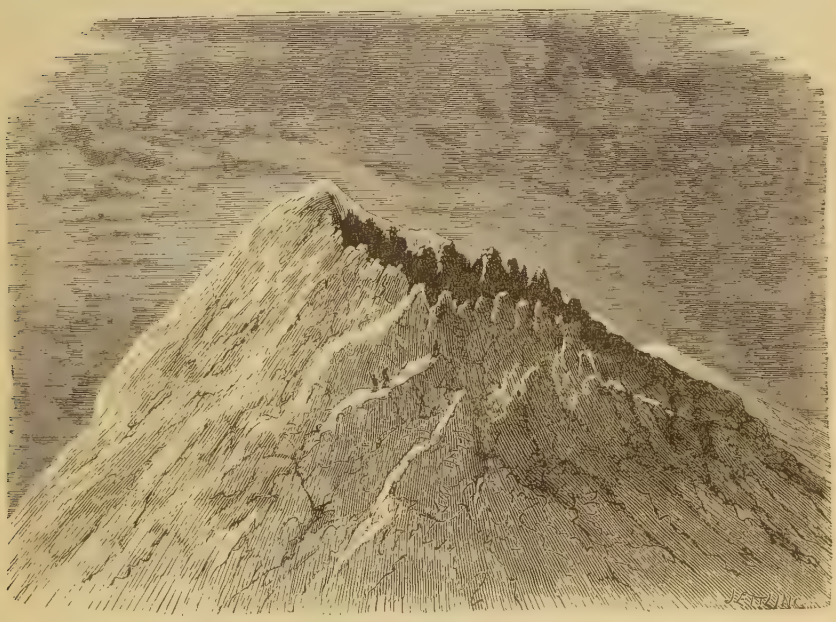
The God of the Air, Quetzalcoatl, after shaking the dust of Cholula from his shoes, and having died on the coast of Goatzcoalcos, was brought to the peak of Orizaba, and his body consumed by fire. His spirit took its flight toward heaven in the shape of a peacock, and since that time the burning mountain has borne the name of *Ciltlaltépetl*, or Mountain of the Star.

The next station of importance is San Marcos, one hundred and fifty miles from Vera Cruz, where the narrow-gauge railroad from the latter city to Puebla and Mexico, by the way of Jalapa, crosses the *Ferrocarril Mexicana*. We are now in Tlascala, that little state whose heroic people, at war with Montezuma at the time of the arrival of the Spaniards, tested their invincibility in a terrible battle. Being defeated, they made a treaty with the white strangers, subsequently saving them from annihilation. We shall meet the *conquistadores* again, as we visit Tlascala, Cholula, and Mexico; they are only mentioned in this connection because, somewhere on these plains, and probably in this vicinity, we cross their line of march.

Across these sandy plains, environed by chalky hills above which rises the isolated peak of Malinche, sometimes may be

seen, in the dry season, perpendicular columns of sand and dust dancing on the surface, like water-spouts over the sea.

At the station of Huamantla, an adobe village with a large white church, one hundred miles from Mexico, as at every stopping-place on the line, groups of horsemen in leather jackets and trousers, and wide sombreros, are drawn up along the track. These are the "rural guards," who have a truly rural look indeed, and who, being better paid than the regular sol-



PEAK AND CRATER OF ORIZABA.

diers who accompany every train by the car-full, are supposed to be of greater service in case of an emergency. In fact, the regulars have been known to be perfectly oblivious of the existence of robbers, even when the latter were firing guns and pistols within a hundred feet of them, and depriving passengers of their entire possessions!

Apizaco is another adobe village, one hundred and seventy-

six miles from the coast, where there is a restaurant, and here a branch line leaves the main line for the city of Puebla. At Soltepec, seventy miles from Mexico, we are at an elevation above the sea of 8,224 feet; but, beyond, the plain gradually declines to the Mexican valley.

We have long been in the region made famous for the maguey (*Agave Americana*), and at the station of Apam, fifty-eight miles from Mexico, are in the centre of the "pulque country." Fields of wheat and barley took the place of tobacco and sugar-cane many a mile back, but these in turn yield to that wonderful native of the Mexican plateau. Immense fields stretch away on every side, unbounded by walls, but crossed by a thousand rows of the maguey, and in the distance gleam the white walls of the haciendas, fort-like structures with pierced and battlemented walls, that pertain to domains from six to ten leagues in extent. Droves of horses and herds of cattle roam the pastures in the intervales, and blue lakes sparkle, in the rainy season, where in the dry months all is parched and brown.

The only remaining station of historic importance is Otumba, and its position has been indicated long before we reach it; for two miles away rise those gigantic pyramids of the Sun and Moon. Gliding down the fertile plains, past the shadowy pyramids, along the borders of the shallow lake, Tezcoco, under the brown hills of Guadalupe, we are at last fairly within the great valley of Anahuac, the original centre of Mexican civilization, and there before us lies the beautiful city, capital of Mexico, bathed perchance in the golden beams of the departing sun. And into this valley, the former theatre of strife between a multitude of peoples, towards which in years past the eyes of the world have been turned in amazement, we enter by the train, and roll into the suburbs of the city.

XII.

CITY OF MEXICO.

LEFT standing in the station, after all the passengers had departed, no coach within hail, and with no one speaking my native tongue to advise me, I knew not which way, nor how, to go. Looking about for some straw to catch at, that might float me perchance into a comfortable hotel, I saw a group of people taking leave of some would-be passengers by the return train for the coast. Drawing near them, keeping one eye on my gun-cases and trunks, I soon ascertained that they spoke English, and were moreover Americans. Suddenly there came to my ears a familiar expression, — "O yes, I 'm right along in the procession ! " — and I said to myself, " My gracious ! there is Hooper." Now everybody in Mexico knows Hooper, — from his frequent visits, from his facility for making acquaintance, from his jolly good nature, and his entire willingness to impart information. In truth, I have known Hooper to convey to an unsuspicious stranger intelligence of such a character as made the hair of that individual bristle with horror; and then, again, I have known him to talk so hopefully (to ladies) about the beauty, the loveliness, and the perfect security in which life and property rejoiced in Mexico, that they would declare their determination to do the country on foot and unprotected. But then it depended altogether upon what kind of information you wanted. Hooper always gave you just what you desired; you had only to tell him where you were going, and he would contrive so many and such varied delights for that place as to fairly ravish you with joy. If you wanted a gold mine in proximity to picturesque scenery, there you had it; if you wanted to slay a brigand on the road, it was just infested with them, —

not too many for comfort, but enough to furnish a spice of adventure and satisfy your appetite for blood; but if you were at all timid, and abhorred the thought of bloodshed, why that road was just a walk-over, there was not a robber within one hundred miles.

Well, in short, there was Hooper, just as lively as when I last left him on board ship, and with a host of friends down to see him off. The reception he gave me was most cordial, for Hooper is from Buncombe County, and he at once dragged me up and introduced me to his party of friends. In five minutes, it was arranged that I was to occupy the room he had just vacated at the hotel; I was introduced and consigned to the landlady thereof, and as comfortably settled as if I had known them a century. The train rolled out, bearing the generous-hearted Hooper, and his friends took me in charge and led the way to the hotel.

It is not always that one so easily effects an entrance into a strange city in a new country. The room assigned me was one after my own heart, a walled-off corner of a house-top, commanding a wide-spread view of stone-walls and roofs, and of the entire valley of Mexico. Moreover there was, right within a stone's throw, the grand cathedral, and the plaza that had been once adorned with the more ancient temple of the Aztecs. I was landed right in the centre of historic Mexico, in a position most favorable for studying and enjoying it, without previous care or wearisome house-hunting. Surely, it seems sometimes as though it were always best to drift with the stream, when once launched upon it. Gathering here my various "traps" about me, I intrenched myself in this stronghold, purposing to sally forth and attack the city leisurely, as Cortés did, putting behind me a portion at a time, till all should be conquered.

My room, as I have said, was secluded, on the roof. There was no other here, and access to it was by a single stairway, through the kitchen and servants' quarters. A single door and window gave abundant light and air; but there were also two small square holes, — one through the door and one through the thick stone wall. These were closed by means of sliding

shutters. Their use was a matter of doubt to me, and I asked a friend their meaning. Then he explained: they were loop-holes; I could convert my room into a regular block-house and stand a siege. My friend told me why the room had been loop-holed. When Hooper was here, some thief came and stole a fine revolver, then he came again and took away the holster, and a few nights later carried off the cartridges. Hooper was very wroth at this, though a moment's reflection would have convinced him that no thief who thought anything of himself would care for a revolver without holster or cartridges. But Hooper got angry, though he could never get sight of the robber, and various articles disappeared from time to time.

This was during a former visit of Hooper's to Mexico, two years ago. A lady was the next occupant of this room, — a woman of nerve and determination; she had the walls loop-holed, had a bell-rope, telephone, etc. attached, and calmly awaited the robber.

He came; he shook the door gently, and tried to get it open; but this lady was ready for him. She opened fire at once, jingled the bell, and shouted through the telephone, and then sallied out, intending to surround the robber and capture him, with the aid of the party that was to come up the stairs to her rescue. During all this time she was letting off her revolver in a rather aimless way, and so the rescuing party halted beneath the stairs and inquired what she wanted. By the time they found out, after prudently waiting till her stock of ammunition was exhausted, they also found that the robber had escaped.

Information of such a character was calculated to increase my interest in the room, and to assure me of an acquaintance with a trait of Mexican character not at all desirable.

From the peculiar manner of construction of the buildings of the city of Mexico, with solid walls and flat stone roofs, all connected, a person can walk from one end of a block to the other — barring such interruptions as that lady purposed to offer — without any trouble whatever. The houses of the city are built in squares, or blocks, called *manzanas*,[1] 200 *varas*, or

[1] A *manzana* is a square measure of 100 × 100 yards.

660 feet, in length. The Hispano-Moriscan style of architecture is the same throughout the country, and gives to every city and town a resemblance to every other, with wide paved streets crossing each other at right angles and terminating in a great square in the centre. The houses, massively built, of stone, are also all after the same pattern. From the street, through a great doorway, closed at night by a barred and bolted door studded with nails, you enter the *patio*, or lower court, flagged with stone and surrounded by the stables and servants' quarters. This door is rarely wide open for free ingress and egress, but is loosely chained, and strictly guarded by the *portero*, who occupies a little room on the ground floor. This court is open to the sky, and above it are usually two ranges of living and sleeping rooms, with corridors in front, ornamented with tasteful iron balustrades, gay with flowers and vines, and sometimes cooled by the waters of a plashing fountain. Except in a house occupying a corner lot, only one wall opens upon the street, and the windows of this are well guarded with iron bars, and closely curtained; so from the outside world the families are as strictly secluded as the inmates of a prison or convent. Air, light, and sunshine they obtain from above the court, and pass their days among themselves in *négligé* and careless freedom. Above the apartments just mentioned is the roof-top, — the *azotea*, — terraced, like the roof-tops of the Orient. Here the family gather at evening time to enjoy the cool breezes, the quiet, and the gleaming stars of night.

Seated upon the azotea, with cool breezes playing about you, the hum of busy life in the plaza and streets coming up from below, and with soft moonlight flooding the sea of roofs on every side, — this is the time and place to bring up again the spectres of the dead and departed *conquistadores*.

We left the Spaniards at Tlascala on their way to the city of their aspirations; thence they marched upon Cholula, whence, after committing a massacre of its inhabitants, they climbed the mountains that alone separated them from the valley of Mexico, over a trail that yet exists, between the volcanoes of Popocatapetl

A PATIO

[The Court of the Museum.]

and Iztaccihuatl, and from the western slope of these twin mountains first beheld the stronghold of Montezuma. The sequel is of course well known to all, — that they descended to the plains below and marched towards the great lake surrounding the capital, where they were received with magnificence by Montezuma and his nobles; entered the city, where they remained several months; treacherously made captive the great and generous monarch, who was subsequently slain in an insurrection of his people; and were at length driven with great slaughter from the valley. Their entry was on the 8th of November, 1519; their expulsion, in July of the next year. Near the pyramids of Otumba, or San Juan, they were overtaken by the enraged Indians, escaping by a miracle to Tlascala, whence, after months of recuperating, and with reinforcements, they returned to the investment of the city of Mexico, in December, 1520, finally capturing it in August, 1521.

The ancient capital disappeared, for the Spaniards only took it house by house, and stone by stone, tearing down temples and palaces and filling up the canals with the *débris;* but many places remain that were identified with the conquest and with the Aztecs, and which are fully authenticated. In entering the city for the purpose of observation we naturally turn our footsteps toward the plaza mayor, the great central square, for it was also the centre of the former city, and indicatés the site of the Aztec teocalli, or temple of sacrifice. Recent excavations made in the summer of 1881 have brought to light the very corner stones of this sacred edifice, and have thus vindicated the statements of early historians.

According to the best authorities, this building was a pyramidal structure, truncate, built in successive stories, each of which was reached by a flight of steps only after passing around the entire pyramid. One hundred and fourteen steps led to the square platform at the summit, about one hundred and fifty feet above the ground. This was the temple of their war-god, Mexitili, or Huitzilopochtli, and their place of sacrifice. This heathen temple was razed, and on its site, in 1530, was built a church, which was demolished in 1573 and the pres-

ent cathedral commenced, which was finished in 1667, at a total expense little short of $2,000,000. It occupies the eastern side of the great plaza, is of the shape of a cross, 426 feet long, 200 wide, and 175 feet high, with massive towers reaching an altitude of 200 feet. Joined to it is a sister church, the Sagrario, or church of the parish, the florid and almost grotesque façade of which forms a decided contrast with the grand and imposing front of the cathedral. Until very recently, these were enclosed by a line of chains hung between about one hundred stone posts, the two corner pillars opposite the plaza supporting a cross with a ghastly emblem of death at its base, — a skull skilfully carved from marble, and an entwined serpent. This enclosure, which was a favorite resort of the bird-sellers, Indians with light wares for sale, *leperos*, and beggars, has been converted into an attractive garden. Many a time have I seen groups of dirty men and women of the proletarians crouched at the bases of these pillars, — not in worship or adoration, but engaged in threading with their bony fingers one another's hair, in eager search for that hemipterous insect so rarely seen except on the filthiest of the human species.

The interior of the grand cathedral is, even at the present day, after having been successively plundered, most magnificent. It contains five naves, six altars, and fourteen chapels, which contain the bones of some of the viceroys and departed great men of Mexico. The Glory of the Cupola, Virgin, and revered saints, were painted by celebrated artists. A balustrade surrounds the choir, of a metal so rich that an offer to replace it with one of equal weight in solid silver was refused. This weighs twenty-six tons, and came from China in the old days of Spanish dominion, when the richly freighted galleons of Spain sent their cargoes overland from Acapulco to Vera Cruz, on the way to the mother country. The high altar was formerly the richest in the world, and yet retains much of its original glory. It contained candlesticks of gold, so heavy that a single one was more than a man could lift, chalices, cruets, and pixes of gold encrusted with precious stones, censers, crosses, and statues of the same precious metal, studded with emeralds,

THE GREAT CATHEDRAL.

amethysts, rubies, and sapphires. The statue of the Assumption (now missing) was of gold, ornamented with diamonds, and is said to have cost $1,090,000. There was a golden lamp, valued at $70,000, which it cost at one time $1,000 to clean, but according to a French writer, — and the joke is his, — the liberal troops cleaned it out for nothing, and it has not been seen since. These treasures are merely enumerated as having once been here, for it is difficult to believe that they still occupy a place in the dazzling mass of gilding and ornament surrounding altar and choir, in a country that has passed through such trial and revolution as has Mexico. But these and much more existed, and were accumulated when bishop, priest, and monk ruled the country with a rod of iron, and possessed two thirds the entire wealth of the nation.

Enter at any time, and you may see some kneeling figure, it may be of a rich and beautiful Señora, with the purest of Castilian blood in her veins, or a miserable Indian just in from the country, with a load of vegetables, or even a coop of struggling chickens, still at his back. During the crowded attendance on feast-days and at other times, rich and poor, cleanly and filthy ones, mingle indiscriminately, and then the *leperos*, while pretending to great devotion, find it easy to relieve the wealthier members of society of their purses and handkerchiefs.

One day, when first in Mexico, Cortés ascended to the top of the teocalli,[1] and Montezuma, taking him by the hand, pointed out to him the various parts of the city. In like manner, let us ascend the cathedral tower and look over the selfsame valley, from nearly the same height and point of view occupied by the Spanish conqueror and the Aztec emperor. "This is a royal place," says Bishop Haven, "to see this royal city. Never had town such grand environment. Athens has mountains and sea, but scanty plains; Rome, plains, but no water, and low-browed hills; Jerusalem, mountains, but no plains nor sea. . . . . The city lies all about us, its limits being equidistant in every direc-

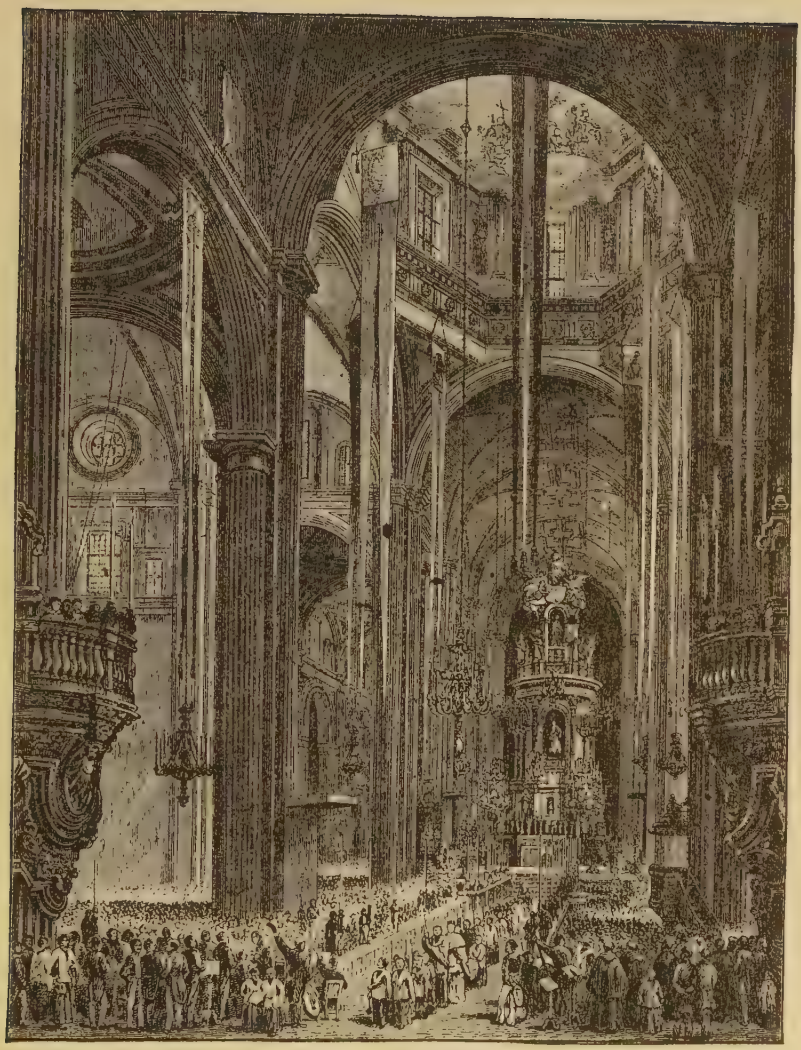
[1] "The teocalli was in ruins a few years after the siege of Tenochtitlan, which, like that of Troy, ended in the almost total destruction of the city." — Humboldt.

tion. Its flat roofs extend for a mile, domed with spacious churches."

Says a celebrated French traveller: "Mexico is a grand city, in the Spanish style, with an air more inspiring, more majestic, more metropolitan, than any city of Spain except Madrid, crowned by numerous towers, and surrounded by a vast plain bounded by mountains. Mexico reminds one somewhat of Rome. Its long streets, broad, straight, and regular, give it an appearance like Berlin. It has some resemblance to Naples and Turin, yet with a character of its own. It makes one think of various cities of Europe, while it differs from all of them. It recalls all, repeats none."

"The second day," says Mr. Ward, England's former Minister to Mexico, "made converts of us all; in the course of it we visited most of the central parts of the town, and, after seeing the great plaza, the cathedral, the palace, and the noble streets which communicate with them, we were forced to confess, not only that Humboldt's praises did not exceed the truth, but that amongst the various capitals of Europe there were few that could support with any advantage a comparison with Mexico."

Elevated at this height above the plaza, of nearly one hundred and eighty feet, the din of the city reaches our ears, — the hum of myriad voices, the patter of thousands of feet, and the rattle of coach-wheels over the pavements. Yet it is a rather silent crowd that fills the square, composed in great part of idle vagabonds who have no employment, and hence are in no hurry, and create no bustle. Directly beneath us is the great square, with the smaller one, the *zocalo*, or pleasure garden, in its centre. This latter is a green spot in this desert of stone, its tall trees shading marble walks, statues, fountains, and flowers, beautifully disposed about a central kiosk used as a music stand. The flower market, occupying a small iron building of graceful architecture, is held here, and a small octangular structure is the despatching office of the street railways, which, radiating in every direction, reach every available and desirable suburb. All the streets of the city seem to meet in, and take their departure



INTERIOR OF CATHEDRAL.

from, the *plaza mayor*, — some broad and some narrow, but all paved and straight, and lined with high buildings of stone. The structures themselves are built mainly of *tetzontli*, a porous amygdaloid of dark color obtained from ancient quarries near the city, which, as it unites firmly with mortar, is more in request than any other for the buildings of the capital.

The cathedral occupying the northern side of the square, we have on our left, forming the entire eastern boundary of the plaza, the great national palace, over twenty-eight hundred feet long, and containing an infinite number of rooms. In a portion of this building — which is said to occupy the site of the ancient palace of Montezuma, or rather of Axayacatl, his royal sire, one room of which held three thousand persons — is situated the meteorological observatory, conducted by eminent scientific men. It is likely to be of great use to the scientific world; for, remember, we are here elevated some seven thousand feet nearer the heavens than in Greenwich or Washington; the air is consequently clearer, the stars brighter, and the moon and planets larger, than there. Add to this the fact — which must have been already observed — that there are no chimneys here, no smoke, and little dust, and we can imagine the perfect transparency of the pure ether through which these meteorologists and their brothers, the astronomers of the School of Mines and Chapultepec, gaze upon the other worlds outside of ours. Several companies of soldiers are constantly quartered here, who are paraded in front of the palace every morning as the clock strikes eight. Though sentinels stand guard at every portal, free access may be had to all portions of the great building upon application, and the admirer of relics of defunct imperialism may, for a *real*, look upon the state coach of Maximilian, yet preserved as a useless curiosity. The palace is the official residence of the President of the nation, and contains the offices of himself and his ministers and military commanders, and also the treasure of the nation and its archives.

In the botanical garden attached to the palace is a curious plant, called *el arbol de las manitos*, the tree of the little hands. It is the *Cheirostemon platanifolium* of the botanists, and the

Tzapalilqui-Xochitl of the ancient Aztecs, one of whose kings went to war with another petty monarch to obtain possession of it. It bears a beautiful red flower, the centre of which is in the form of a hand, with the fingers bent a little inward. Only three trees of the kind are said to exist in all Mexico, two in the botanical garden, and one (the mother plant) in the mountains of Toluca.

Directly opposite the cathedral, at the southern side of the plaza, is the municipal palace, supported, like the buildings bounding the greater portion of the western, upon the picturesque *portales*, or arcades, — a feature in the architecture of the public buildings of this country, as we have seen in Yucatan. Here the tide of human life flows at the full; every available corner is occupied by some huckster, beggar, or pedler, and all the native products of the land are displayed for sale outside and in the adjacent shops. Everything manufactured in Mexico is before us here, from a sombrero, with a brim a yard wide, loaded with silver, and costing fifty dollars, to a sarape, or Mexican blanket, of gay colors, and equally expensive.

Lifting our eyes from the scene of animation spread below, and letting them wander over the stone walls that surround us on every side, like a coral plain rent into chasms, we note another verdant square to the westward. This is the *alameda*, the forest garden of Mexico, which is older than the zocalo, and has larger trees, finer flowers, grander fountains, and more elaborate walks and garden plots. Here the good citizen of Mexico resorts at least once a day for a walk, the nurse with her charge, and the omnipresent policeman, the student with his book, and the lawyer with his client. This most charming spot, where once apostates were punished with fire, — for heretics were burned here by the Inquisition, — is but the beginning of the city westward and southwestward, towards the hills that approach the valley from that direction.

Letting our gaze wander on, we look beyond the brown plains and green fields, intersected by lines of trees, roads, and aqueducts, and dotted with the white walls of scattered villages, — beyond all these, to the hills that enclose us on every side. It

is a view too grand for simple description, too vast, even, for an artist to grasp and depict on a single canvas; and I hesitate to attempt more than separate portions of it at a time.

We occupy the central portion of a valley in the cordilleras of Anahuac, fifty-five miles in length by thirty in breadth, and enclosed by a wall of mountains two hundred miles in circumference. This rugged barrier circumscribes our view in every direction; amethystine hills of lovely hue, without a break or change in color except far to the southeast, where the two great volcanoes raise their snow-covered peaks to heaven. Between us and them is spread every variety of surface that ever rejoiced the eye of an admirer of nature, in the hills crested with groves, the plains and valleys gemmed with lucent lakes. The great Lake Tezcoco, which formerly surrounded the city, lies now at a distance of three miles from it, sleeping in the sunshine, with the haze of distance enwrapping its farther shore. This is the salt-water lake; farther south are the fresh-water bodies of Xochimilco and Chalco. The hills nearest us are those at the base of which the church and chapel of Guadalupe are built on the north, and of Chapultepec, lying to the west. Both points are historic, the one in the comparatively modern days of the conquest, the other in its connection with ancient peoples and scenes of recent days.[1]

In looking over this vast valley, and the wide area of denuded meadows that surrounds the city, we cannot avoid the conviction that the early chronicles were truthful in their descriptions of Mexico as having been built upon an island. Various doubters have affected to disbelieve this fact, even though every proof is present that the surroundings could afford, aside from the statements of many writers. The Aztec chronicles state that they made their permanent stay on an island, or group of islands, northeast of Chapultepec, and the writings of the Spaniards who were eyewitnesses to the events attending the destruction of the old city and the founding of the new positively assert that both were upon an island intersected

[1] See Frontispiece, for an accurate engraving of Anahuac, or the historic Valley of Mexico.

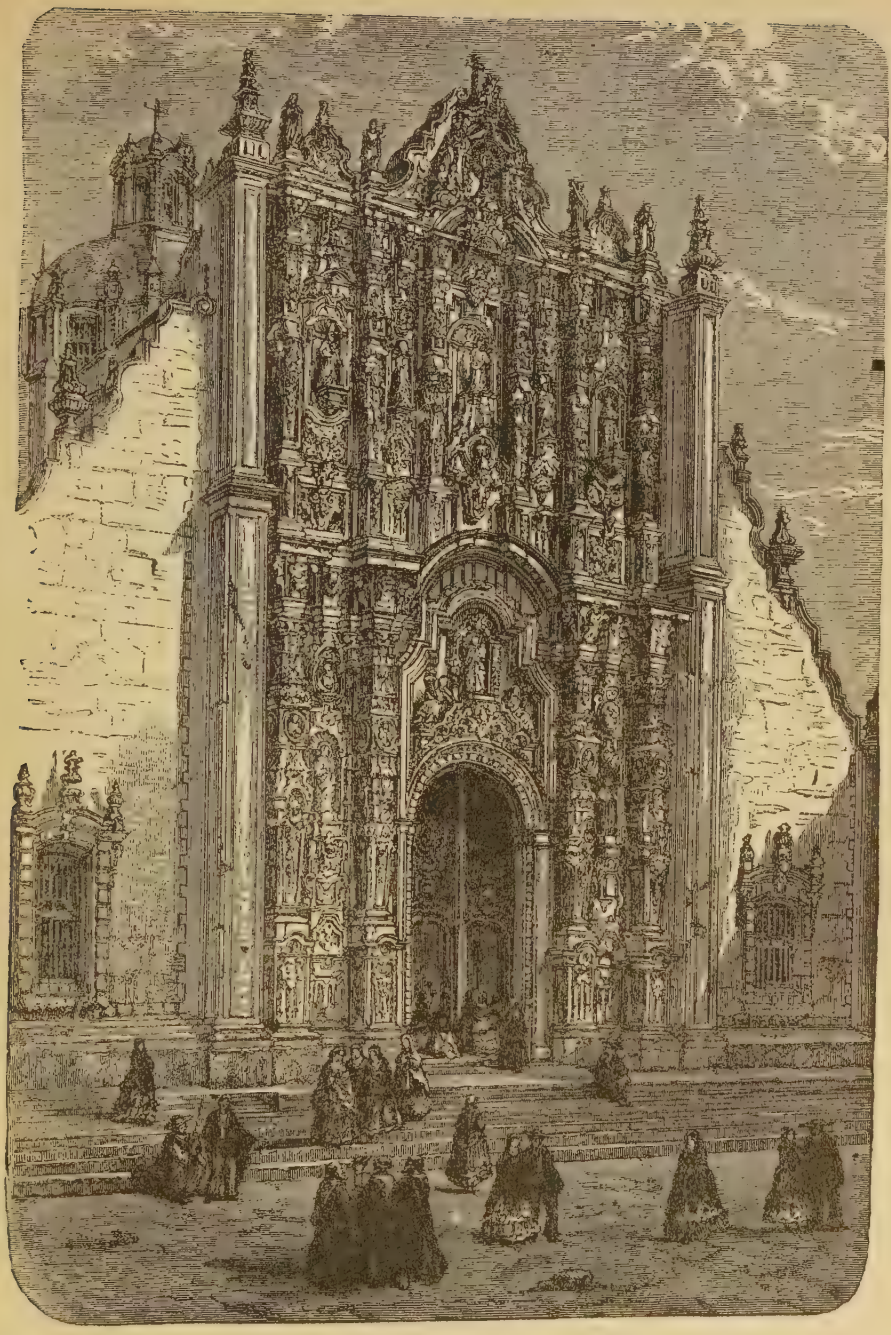
by canals.[1] The circumstances attending the entry of the Spaniards are narrated at length by Bernal Diaz. After descending the mountains and passing through Amecameca and Chalco, they skirted Lake Tezcoco[2] by the base of the line of hills southeast of the city, and approached from the direction of Lake Chalco. After having been met by Montezuma in great state, with his nobles, they were conducted to the city. "We then set forward," says the old soldier, "on the road to Mexico, which was crowded with multitudes of the natives, and arrived at the causeway of Iztapalapa, which leads to the capital. When we beheld the number of populous towns on the water and firm ground, and that broad causeway running straight and level to the city, we could compare it to nothing but the enchanted scenes we had read of in 'Amadis of Gaul,' from the great tower and temples, and other edifices of lime and stone which seem to rise out of the water."

Humboldt says that the ancient city communicated with the continent by the three great dikes of Tepejacac (Guadalupe), Tlacopan (Tacuba), and Iztapalapa. Cortés mentions four dikes, because he reckoned, without doubt, the aqueduct (and causeway) which led to Chapultepec. To simplify the position, imagine a causeway reaching the city from the southeast, another leading out of it to the north, and another west, besides the aqueduct to Chapultepec (a little south of west), which may have been built upon another causeway.

Upon the ruins of the Aztec capital, therefore, after the siege had ended, the Spaniards laid the foundations of the modern city, still on an island, connected with the main only by the dikes, but with many of its canals choked with the material of ruined buildings. This "Venice of the Western world," as many authors have styled this centre of civilization in Lake Tezcoco, lost thereby its water-ways, which served in place of streets, and not many years passed before it was found to be in danger of

[1] The curious reader will find many particulars of historic information, such as dates of arrival of the tribes which successively invaded the valley of Mexico, etc., in the author's "Young Folks' History of Mexico," the later edition of which is carefully indexed.

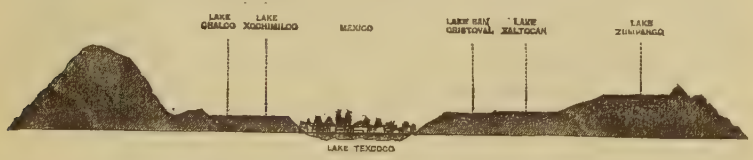
[2] Written Tezcoco, or Texcoco, and pronounced Tesh-có-co.



EL SAGRARIO.

(Adjoining the Cathedral.)

inundation. It has passed through several floods, the severest of which was that of 1629, which great inundation lasted till 1634; boats passed through the streets as of old, and, though the most holy image of the Virgin of Guadalupe was brought into the city for the purpose of drying up the waters, it was a long while before they subsided, and chiefly through the influence of earthquakes.[1] At the corner of the street of San Francisco and the *Callejon del Espiritu Santo*, — Alley of the Holy Ghost, — there is the golden head of a lion, grim and dumb, that marks the height, about six feet, reached by the waters in 1629.

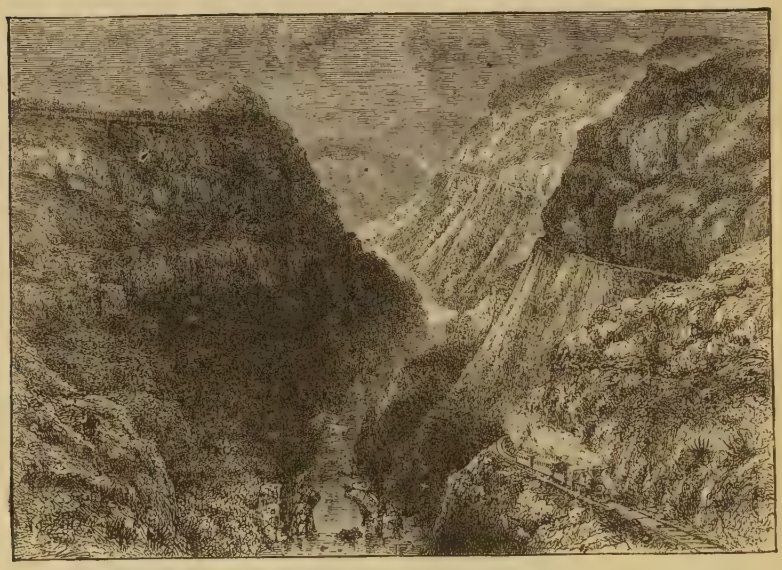


RELATIVE LEVELS OF LAKES AND CITY.

There was a physical cause for these periodical floods in the comparative levels of the city and the lakes that occupy a goodly portion of the valley of Tenochtitlan, or Mexico. In the Plaza de Armas you may find to-day a monument (that was only unveiled in the summer of 1881) to one of Mexico's great hydrographers, containing on its four sides the heights of the lakes of the valley, the stage of the water in Lake Tezcoco, and other information of a hydrographic nature. There are six of these lakes; — Chalco and Xochimilco, the southernmost, whose levels are ten feet above that of Tezcoco, the largest and nearest, but six feet below the pavement of the city at ordinary stages of water; San Christobal, a small lake north of Tezcoco, and Xaltocan and Zumpango, in the northern end of the valley, at an elevation of twenty-five feet above the city. In order to save the city, it was considered necessary to divert the waters of Lake Zumpango — which flowed into Tezcoco, a lake without an outlet, and were a perpetual menace to the capital — in another direction, through the mountain wall

[1] The city itself has been seven times inundated, in 1446, 1553, 1580, 1604, 1607, 1617, 1629; and five times partially submerged, in 1620, 1630, 1748, 1819, and 1865.

that enclosed the valley, into the River Montezuma, which empties eventually into the Gulf of Mexico. A great tunnel was commenced, in 1607, with 1500 Indians, and completed within a year, its length being more than 6,600 metres (21,650 feet). The falling in of the tunnel was the cause of the great inundations that submerged the city, and attempts were made to convert it into a trench; but this latter undertaking was not finished until 1789, nearly two centuries after its commencement.



TAJO DE NOCHISTONGO.

The great trench is from 30 to 160 feet in depth, and in some places 300 feet broad, and is known as the *Desagüe de Huehuetoca*, or the *Tajo* (Cut) *de Nochistongo*. Instead of carrying away the waters of the lower lakes, the great canal only drained Zumpango and a river which was diverted into it, leaving Tezcoco and Chalco unaffected directly by the drainage. It, however, relieved the city from apprehension regarding the danger that would have resulted from a sudden overflow of the upper lake into Tezcoco; and by taking away the main tribu-

tary of the latter, in conjunction with its great evaporation, its area has been greatly diminished, so that, instead of surrounding the city as in former days, its nearest shore is three miles from it, measuring from the plaza.

For three hundred years the sewers of the city have attempted to discharge into the lake; and though the latter has gone on evaporating all this while, yet the flow of filth has never ceased, and the level of the lake still remains but six feet below that of the city. The sewers are constantly charged; beneath the pavement of the city of Mexico is the accumulated filth of near five hundred years! As a consequence, despite the rarity of the atmosphere at this high altitude, malaria spreads itself upon the air, and fevers of a mild type prevail here.

Numberless plans have been submitted to the government for draining the lake and relieving the city of its surcharge of corruption; some have been accepted, but none have been attempted, though a fund for the purpose was started years and years ago. A wealthy American company was the latest to bid for this contract, and even went so far as to obtain a liberal concession from Congress and the Executive. Through the city of Mexico, by this plan, sewers are to be constructed flushed by the waters from the lakes, which are carried to a common conduit, where the sewage is purified by deposition, the solid matter to be used for fertilization and the water carried away in the canal. The whole length of the canal would be about fifty miles, the expense about $7,000,000.

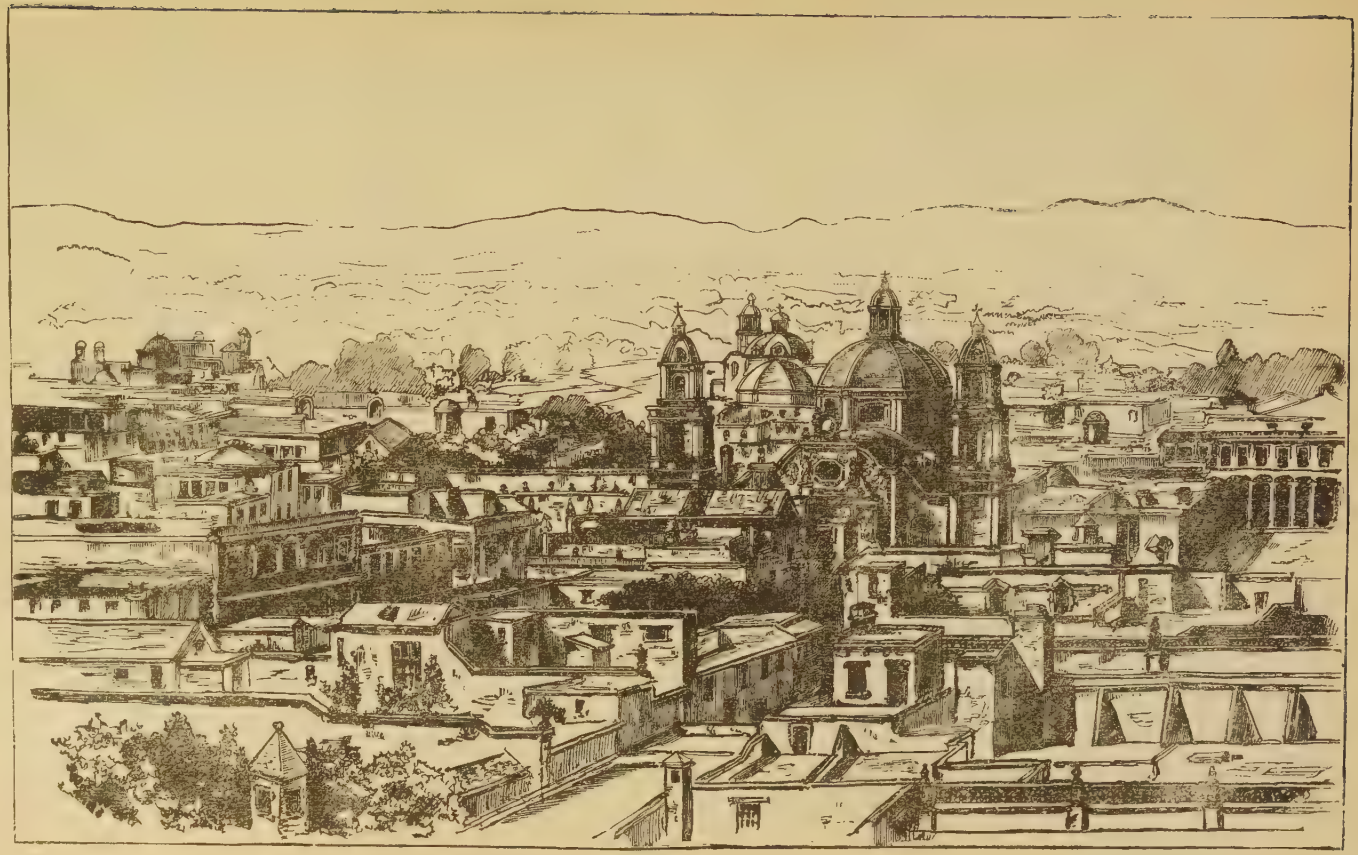
Having now a period of peace and prosperity, with a friendly nation kindly building all her railroads necessary to develop internal commerce, Mexico will undoubtedly turn her attention to the purification of her capital, that it may become in future years the Mecca of pilgrims in search of health, as well as of those looking for magnificent scenery.

XIII.

A RAMBLE AROUND THE CITY.

THIS city of nearly three hundred thousand inhabitants lies in latitude 19° 26′ north of the equator, and at an elevation above the sea of seven thousand four hundred feet. Its situation, within four degrees of the tropic of Cancer, would give it, so far as geographical position is concerned, a climate like that of Havana, without its sea breezes; but the isothermal line is here deflected northward by the greater altitude. The temperature ranges between 65 and 85 degrees, varying little with the seasons; the mornings and nights are cool, while at midday it is always hot, and the difference between sunshine and shade is very great. The climate is strictly temperate, and nowhere in the world do the periodical alternations of rain and drought occur with greater regularity.

The so-called rainy season extends from June to November, and is the most delightful period of the year, especially at its commencement and towards its termination. The latter month, November, is cool and pleasant, and indicates that the season has arrived when visitors from other countries can enter Mexico without fear of encountering deadly disease, and with the prospect before them of a full winter of dry weather. It is in May or June that "muttered thunders announce the coming of the rains, and all nature looks expectantly for the approaching showers"; the dry, brown hills take on a carpet of green in a single night; the beds of water-courses, for months without a drop of water in them, are in a few days the channels of furious streams. The animals of the hills and plains rejoice at the recurrence of the period of rain, for their pastures then afford them an abundance of succulent herbage. The eye of



A VIEW OVER THE CITY.

man is delighted with verdure and the bloom of flowers, which clothe the valleys and brighten the gardens. At the close of this season the migratory birds arrive from the north; great flocks of ducks and plover, which betake themselves to the lakes and marshes, where they afford an abundance of food for the Indians and much sport to the denizens of the city.

Even long journeys are pleasantest in this season, especially in the northern portion of the republic, except for the occasional disadvantages of swollen streams and flooded roads. By timing the hours of travel so that a start is secured before daylight, and halting by the middle of the afternoon, the rains are avoided, as they invariably fall between noon and sunset, except at the beginning of the season. In a journey of above a thousand miles on horseback, through Southern Mexico, in the height of the rainy season, myself and companions got wet scarcely a dozen times, though in the saddle every day. In the city of Mexico, the encircling mountains, by their position and great height, precipitate many showers that do not fall in places outside the valley, as in Puebla, for instance, which has a much smaller rainfall.

From the contiguity of the mountains to the valley, also, the rains here assume a violence that at times is tremendous, filling the streets of the city, and flooding the parks and plazas. In a single shower, lasting but an hour or so, I once saw the main street of Mexico filled knee-deep, and every one caught out in it had to hire a coach with which to reach his home. This was owing not only to sudden precipitation, but to the defective drainage of the city, which would not allow of the carrying away of the water in sufficient volume. Even the contents of the sewers were floated into the streets, and washed into the doorways of many stores and dwellings. On the occurrence of such sudden rainfalls, the porters of the city transform themselves into beasts of burden, and carry ladies and gentlemen from one crossing to another, for a few *centavos*, on their backs. They are rascals, many of them, who have been known to suspend an unlucky passenger above the water till he agreed to give a generous *douceur* for the privilege of landing, or keep

him in this defenceless position till a companion has found and got away with his purse or watch.

From its great elevation, combined with its geographical position, Mexico (the city) has a most perfect climate. Except for the local influences, previously mentioned, the atmosphere is dry and pure. Many people affect to suffer from the rarefaction of the air; but it is believed that, if they had been transported here without knowing of the change of altitude, they would breathe as easily as at the coast. The air is so transparent that objects at a distance seem close at hand; many writers have noticed the deceptive appearance of the hills, which can be seen at the termination of every street as though within an hour's walk, when in reality twenty miles away; and the two great volcanoes, though seemingly within cannon-shot, are all of fifty miles distant.

The brisk electric condition of the air may account for the animation of the people, both native and foreign residents, who are always stirring, except at noon, and always cheerful. Despite the exhilarating atmosphere, to breathe which is a perfect delight, there is a universal cessation of active business at noon, (though morning is early devoted to work, and evening to recreation,) as the *siesta* imperatively asserts its claims, and everybody retires for an hour or two to couch or hammock. The longest day of the year being but thirteen hours, and the shortest eleven, this almost equal division of time between day and night greatly facilitates plans for business and amusement. Everything goes on with clock-work regularity, and the inhabitants of the great city rise, eat, work, snooze, dance, and retire at stated hours. Honest men profit by this regularity to despatch their labors with their fellow-men when they are most accessible, and after dark those who are not honest know where and when to find victims to fleece or murder, without losing sleep, or shivering all night in the cold.

With this brief digression, as explanatory of the sanitary condition of the city, let us continue our sight-seeing. Having started with the *plaza mayor*, it would perhaps be well to work outwards from it, and take the most distant places last. Diago-

THE PLAZA.

(As it appeared in 1860.)

nally opposite the zocalo in the centre of the Plaza, and facing the western wall of the cathedral, is the most beneficent institution in Mexico, — in the world, — the Monte de Piedad. It is a pawn-shop on a gigantic scale, erected for the benefit of poor people and worthy members of the shabby-genteel class, whose ancestors were once wealthy, and left them money which they have squandered and property they fain would realize upon. It was founded by the famous Count of Regla, who gave three hundred thousand dollars for the purpose, in order that the poor and needy might obtain advances upon personal property at a low rate of interest. This is deposited as security, the sum advanced upon it being fixed by two valuators, as near as possible to about three fourths its real value. Should the interest cease to be paid, the article is kept seven months longer, when a price is fixed, and it is exposed for sale; five months later, if not sold, it is offered at public auction, the sum it brings in excess of the advance upon it and the added interest being placed to the credit of its owner, and subject to his order, or that of his heirs, for one hundred years, after which it reverts to the bank.

The original capital of this charitable institution has more than doubled, and the amount of good that it has done in the century and more of its existence is incalculable. If Mexico had no other great charity than this, the fact of its existence, and that it has been allowed to carry on uninterrupted business through civil wars and changes of government, revolutions and counter revolutions, speaks volumes in favor of Mexican foresight and forbearance. The family gods of the country — rich garments, saddles, swords, gold ornaments, diamonds, pearls, and rubies — are collected here. Sometimes great bargains are secured at the sales and by private purchase, but not often, as the valuators are shrewd and careful men, who, it is said, have to make good any loss to the bank from undervaluation. But there are often deposited here gems that have an historic, added to their intrinsic value, — some say, many jewels that have flashed from the robes of royalty. The great building occupies the site of the palace of Cortés, built for him soon after the conquest; and one cannot go amiss in paying it a visit.

Notwithstanding the presence here of an establishment that will advance upon nearly everything a fair percentage of its value, the smaller dens of "My Uncle" flourish in abundance. They may be found on every street, and on some streets in every block, displaying a more heterogeneous assortment of stuff than the mind of man can conceive of. They will take anything offered them, and the majority are in league with thieves and pickpockets, who deposit their "takes" with them until pursuit is over, and they can be profitably disposed of. The police are cognizant of this, and keep up a rigid inspection of the pawn-shops, though the rascals generally evade responsibility whenever found with stolen goods. An American dealer in hardware told me that he lost more through the pawn-shops than in any other way; for young men, of apparent respectability, have repeatedly bought revolvers, knives, etc. of him on credit, and had them in the pawn-shops before the day had closed. It is owing to such losses as these that dealers in American goods, hardware especially, charge for them four times the price asked in New York — in order that the Mexican fop may keep up appearances.

Another large building, built with laudable intentions, but which has failed to completely realize the purposes of its founders, is the *Mineria*, or School of Mines. Mexico has better provided for her sons in respect to education than foreigners generally give her credit for, and this School of Mines is only one of many institutions throughout the republic for the training of young men in practical engineering and mining. Though often praised as a building of stately architecture, which would be considered a grand structure in any country, the Mineria fails to convey that impression now; and when told that it cost a million and a half of dollars, and that it is the work of the great architect and sculptor, Tolsa, we only wonder at the genius of a man who could conceal so much money in such an unimposing building. Here General Grant was entertained during his first visit to Mexico, in 1880, when he was the guest of the people.

There is a fine collection of the products of the mines here,

a good library, astronomical and meteorological apparatus, educated professors, trained assistants, and some of the most charming young men as students that it has been my fortune ever to meet. One of them, I remember, who bore the name of Cortés, having been detailed by his teacher to show me over the building, displayed such tact, courtesy, and intelligence that I shall never forget him. This treatment of a stranger is universal, and one's heart warms at the recollection of attentions received from these gentlemen of the educational institution of Mexico. In this connection, I should not fail to mention the officers in charge of the meteorological observatory in the Palace. Educated in every detail of their profession, maintaining a leading position among the scientific men of the day, they are making the influence of their observations felt, especially in the United States. But, though busied with their duties night and day, I never found them so much engaged as not to have time to answer questions, or give the greatest consideration to my requests.

The principal street of Mexico, on or near which are its largest hotels, its finest stores and restaurants, and some of its richest private dwellings, is the *Calle de San Francisco*, known also as *Calle de los Plateros*, or Street of the Silversmiths, and by various other names. The vexatious plan, formerly pursued, of giving every different block of a street *a different name*, is now being abandoned; a more improved system is about to be adopted; and in a few years, it is hoped, one may be able to find the number he is in search of in any particular street without spending hours about it, as now is necessary. In San Francisco Street are some of the most richly-stocked stores in Mexico, where, despite the almost prohibitory duties on foreign goods, articles from every land on earth are accumulated. Half-way down this street is the grand Hotel Iturbide (pronounced Eé-tur-bé-dee), once the palace of the first emperor after Mexico became independent.

This hotel is patronized by such American visitors as worship all things smacking of royalty; not because it is comfortable, not because it is cheerful even, — for it is scarcely less gloomy than

a tomb, — but because it is "the thing" to be there. Even clerks on scant salary, engineers who have come out on ventures, artists, correspondents of newspapers, railway contractors, — all may be found within the precincts of Iturbide, that they may write home to their poor relations, "I have dwelt in the abode of an emperor." Grand and gloomy, with a façade noteworthy for nothing except its long, protruding water-spouts, with an interior mainly attractive for its wide court, with dirty *mozos* or men-servants as chambermaids, bare floors, and gaunt bedsteads, there is nothing to attract one to Iturbide, except, perhaps, the drinks dispensed at its bar, which, like the climate, are delicious and vivifying. In describing one hotel, we describe all, for they are all built and managed after the same plan. The cafés, which are conducted apart even if in the same building, are excellent.

Illustrating the departure in a modified way from the architecture of older Mexico, such a house as that of the millionaire Escandon is a fine specimen, though even this structure exemplifies the manner in which the Mexican utilizes his dwelling-place, as the lower floors are occupied by stables and the offices of the Mexican railway. Near this abode of wealth is a peculiar, though effective, tile-covered block, which glistens in the sun like the porcelain domes of Vera Cruz. Historic and beautiful buildings abound near this centre, for only a stone's throw away is the great pile built long ago by the Franciscans, a conventual structure which they lost when their property was secularized, and which is now owned and used by two Christian religious corporations. The missionary work instituted here by the Rev. Dr. Butler is now successfully carried out by his son, and this Methodist rallying place for Protestants is in a flourishing condition. Halls and cloisters, once the resort of unctuous, holy monks, are now filled with active workers in the good cause, and with the material for the lively propagation of the Gospel. The most attractive portion is that facing the Calle de San Francisco, and owned by the Episcopal Church.

A little way distant, a few streets to the south, is another convent, likewise to be put to a use more in accordance

HOTEL ITURBIDE.

with the demands of the times. A magnificent building has just been repaired, and in a measure reconstructed, for the reception of one hundred thousand or more volumes, which are to constitute a national library, with such additions as the future may bring. The books are mostly the spoils from other convents and religious establishments, and though mainly of a character more suited to monks and recluses than to the student of to-day, yet there are many volumes of great rarity and value pertaining to the early history of this country. While upon this subject, I might remark that Mexico is yet full of old and rare religious books. In the book-stalls, which are daily erected around the great cathedral, and nightly taken away, I have often purchased odd works of forgotten, but once famous authors. The keepers of these temporary establishments are shrewd and well informed on the value of books, from a Mexican standpoint; but as they are mostly illiterate, and judge of the value of a book more by the eagerness of a customer than from the reports of trade sales or catalogues, they often sell for a mere song volumes worth their weight in silver.[1]

If this were only a dissertation on old books, I might go on describing treasures that would make a bibliophile's eyes water; but as my object is merely to show my readers how they may see Mexico and its possessions to the best advantage, I repress this inclination to indulge in a favorite vanity.

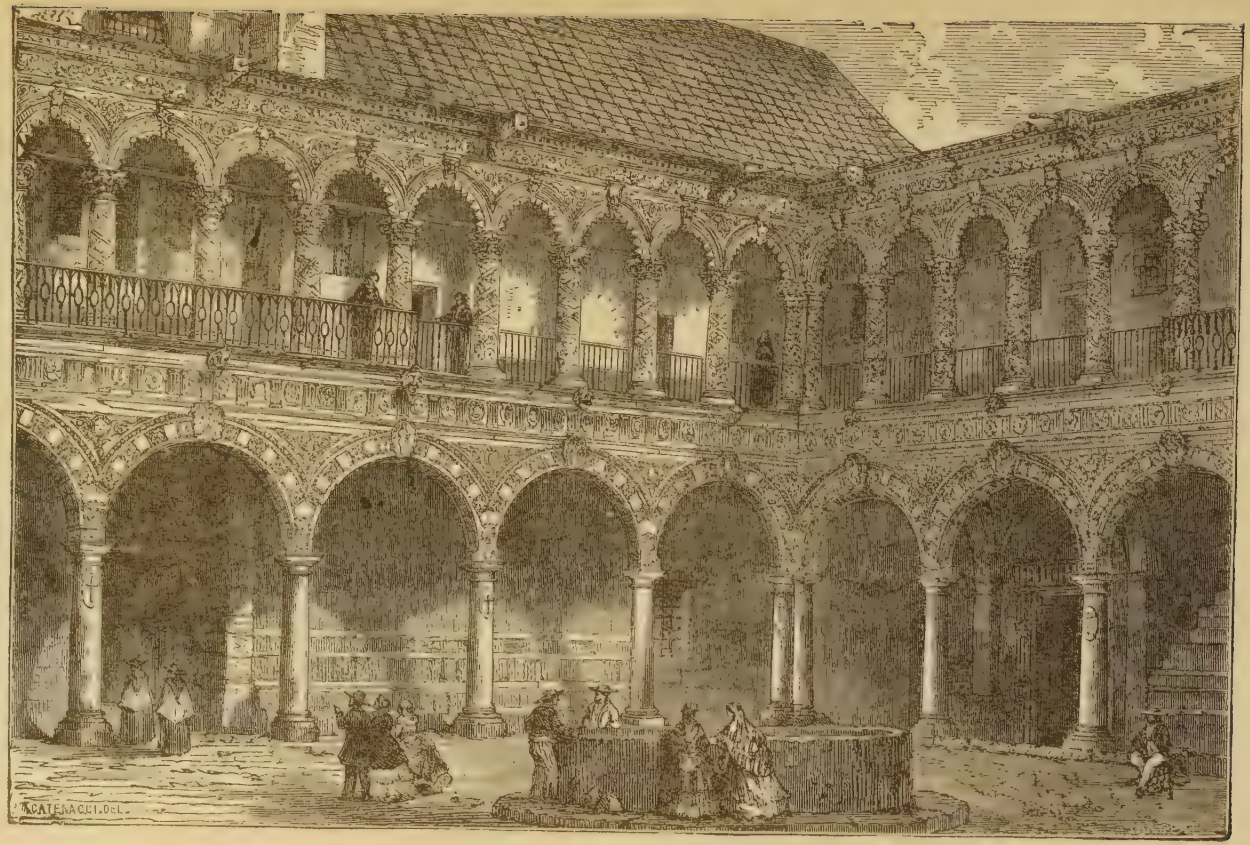
Of old houses there are many about which the antiquary and the artist might love to linger. Perhaps that one in which Humboldt dwelt while here, in the Calle San Augustin, is sought out most persistently. It is made conspicuous by an inscription over the door. Humboldt, as one writer has well remarked, is indeed an honorary citizen of the capital, and achieved more for Mexican independence with his pen than many others combined with the sword. Coming up from South America, he landed on Mexican soil in March, 1803, and remained a year in the country. Though he only visited such points as were of easy access from the capital, he nevertheless so

[1] A few old works, brought home by the author, are now in the Public Library of Boston.

improved and utilized the labors of others that the whole territory bears the impress of his mighty mind. His work, "A Political Essay on the Kingdom of New Spain," though now chiefly useful as giving statistical information regarding the country previous to and at the period of his visit, must yet be taken, as a later writer truly says, as the *point d'appui* for the works of all travellers coming after him. Though perhaps he did not discover here much that was new, or throw any new light upon the history of the people, he yet brought afresh to the notice of the world the writings of the old historians, revived an interest in archæology, and set before all Europe the great natural resources of a country then inhabited by an oppressed people. His books have been a mine of wealth for subsequent historians, and have indeed served not only as a *point d'appui*, but as a very material portion of their productions.

No building in the city, except the former residence of Humboldt, so forcibly brings to mind the great *savant* as the mint, — the *Casa de Moneda*. Though all the prominent points of the valley, such hills as Chapultepec, El Peñon, and the Cerro of Guadalupe, are associated with his astronomical observations and trigonometrical surveys, yet this Casa de Moneda recalls that vast array of figures with which he demonstrated the actual coinage of Mexico from remote times up to the period of his visit. Not millions, but *billions*, are necessary in expressing in dollars the vast treasure that has passed through this mint, entering in crude ingots and departing in glittering *pesos*. The wealth of Montezuma and the Incas of Peru combined has been poured into this establishment since its foundation, since its first coinage in 1535 to the present day. The accumulated treasures of those great monarchs represented the slow accretions of centuries, but the silver flood that is now flowing into the *apartado* represents a stream that promises to increase rather than diminish, — to augment as the rich veins are developed and the old and abandoned mines pumped out and reworked.

The coinage here, for the first three hundred years, was not far from $2,200,000,000! Though I cannot give exact statis-



CONVENT OF LA MERCED.

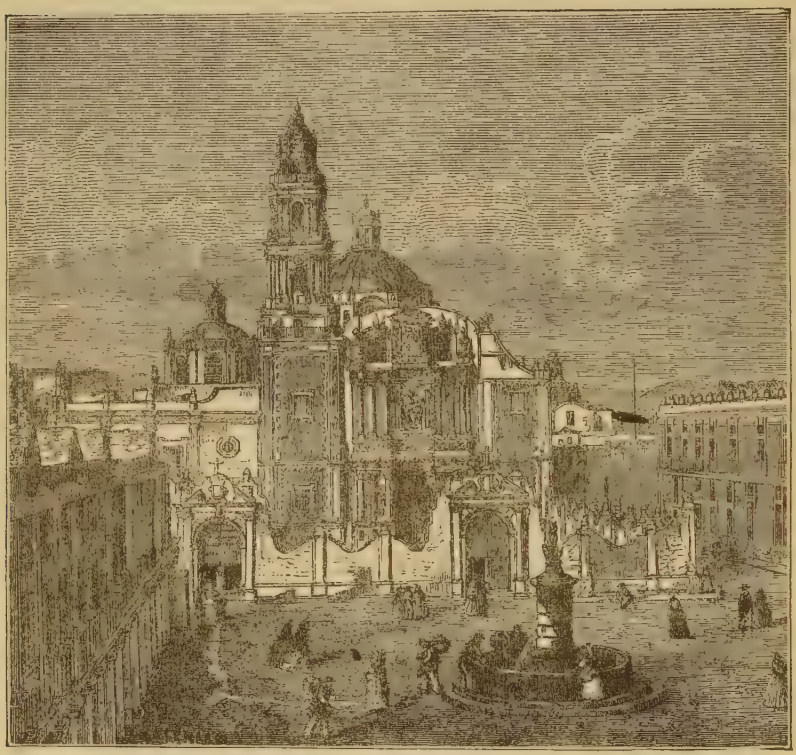
tics of this mint of Mexico, as there are others established in the large cities of the republic, the sum total of all the mints, so far as is known, up to the year 1884 is over $3,000,000,000.

The coinage only is shown here; millions have been exported of the ore; and an approximate of the whole amount will be attempted when we visit the mines. We may wander through these halls in a state of dazed uncertainty as to whether we are existing in the past or present, so firmly does this silver chain of dates and facts bind us, and lead us back to the first years of Spanish possession. Through centuries of change, and every variety of discord and warfare, the dies of the mint have gone on, stamping the likeness of successive rulers upon the product of the mines. Coins of the realm, of the empire, of the republic, at last the steady stream shows only an even flow of coins of the republic, the emblem of Liberty upon every one. Every peso is stamped with its weight in drams and grains; and good weight it is, every dollar weighing just one ounce; for these good Mexicans hold that an honest dollar is alone the product of an honest man.

Another relic of the past, savoring of hell and iniquity, though now devoted to use as a college of medicine, is the old Palace of the Inquisition, near the Plazuela of San Domingo. Long since abolished, the hideous face of the tribunal of the Inquisition peers at us only from the ashes of the dead and horrible past. Its last victim in Mexico, General José Morelos, was burned in November, 1815. For two hundred and fifty years, since 1571, it had exerted its baleful influence, but was crushed, with the last vestige of Spanish power, in 1821. The Plazuela is now occupied as a market in a small way, by poor people, and the odor of sizzling pork and *tamales* rises above the very place where heretics and apostates were once roasted and toasted to a crisp.

It is difficult to wander far from your door without encountering a hospital of some sort; which fact speaks well for the people. Since the suppression of the monastic establishments and the banishment of the sweet sisters of charity, the government has taken these hospitals under its charge. By the

admission of both friend and foe it has discharged its duty faithfully, and the sick and afflicted of all classes have only to mention their particular complaints when they are at once assigned to their proper wards.



CHURCH AND PLAZA OF SAN DOMINGO.

Equally numerous are the theatres and dance-houses, the largest of the former being the National,—*Teatro Nacional*,—in which are brought out many things interesting to American as well as Mexican. A defect in all Mexican theatres, and a very objectionable feature, is the custom of allowing the "prompter" to be not only seen, but heard. The perpetual buzz that precedes the actor's utterances is inexpressibly annoy-

ing. Yet the Mexicans submit to such an imposition, the result of negligence on the part of the actors, and apparently are not inconvenienced by it at all. Cigarettes between the acts, and frequent exchanges of calls, are permissible. As the great city is now lighted by electric lights, and electric clocks connected with the astronomical observatory are displayed in prominent places, no one need fear to wander about its streets, even at night, except in remote and unillumined suburbs.

Very near to the city, once situated, in fact, at the end of the shortest of those four causeways leading out of ancient Mexico, is Tacuba, two miles from the Alameda. In going to this interesting suburb, you take the car at the plaza, and pass through, among many others, the avenue of illustrious men, *Los Hombres Ilustres*, which is very wide and straight, and leads directly out into the country, though changing its name half a dozen times before it reaches open fields. Lying to its right, beyond the Alameda, is the abode of some of the men who have made, not only this street, but the whole republic, illustrious. They reside in a silent quarter called San Fernando, the *panteon*, or cemetery, of San Fernando. Most of the great men of Mexico are dead; the greatest lie here, either sepulchred beneath costly marbles, or shelved in the *columbaria*, after the city fashion in this country.

By far the richest sculpture is that above the remains of Juarez, the "Washington of Mexico," its Indian President, its wise ruler. There lie buried, also, several of the unfortunate generals and leaders of the people, who have been executed by their countrymen, either by the people because they leaned toward Spain, or by the Spaniards because they favored the people. They died for their country, all of them, and through their deaths, though they fell fighting on different sides, is their beloved land now made glorious. I wonder if there will be any reproaches in order when the last trump shall summon all these heroes to their final awards. Let us imagine them pleading their cases.

"I," for instance, says Iturbide, "struck the decisive blow that freed my country from the yoke of Spain."

"Yes," will reply some rank republican, "and set up an empire of your own."

"But I first blew the trumpet-call of freedom!" will claim the bold Hidalgo.

And some member of the Church party will retort: "And in so doing sealed the doom of your Catholic mother."

The irrepressible Santa Anna will doubtless attempt to prove that he was the saviour of Mexico; but some of his numerous enemies will fling at him his supreme selfishness, and enumerate his defeats at the hands of the Americans.

Guerrero and Comonfort, and a host of generals, who made their fortunes and lost their lives in the cause, fighting in the light that then shone on them, will not allow themselves to be ignored. Miramon and Mexia will point to their martyrdom in the cause of the Church and the Empire, while Maximilian will loftily, and perhaps justly, claim that the imperial government he represented and gave his life for was the only one fitted for Mexico. Juarez will undoubtedly rest serenely confident that the peace and progress resulting from his administration is his title to a seat among the elect. But what will they all say when there appears the apparition of the great warrior who made their feeble exercise of power a possibility? Will they not shrink before his terrible features, and allow him a hearing without interruption? Cortés, the conqueror, the chosen of the Lord, the fighter for the faith, the murderer of Indians of royal blood, the founder of Spanish dominion in New Spain, — all must bow before him, unless the Aztecs, whom he destroyed, be allowed to have a voice in the matter. Montezuma and Guatemotzin! what burning brands ye could cast at the Spanish bigot! Would he bow his head before your reproaches, or would he fling at you the long record of the victims of the sacrifice murdered by you and your ancestors? The record of Cortés is not a true one, if he would not overwhelm you with evidence that he did the world a service in destroying you and your religion.

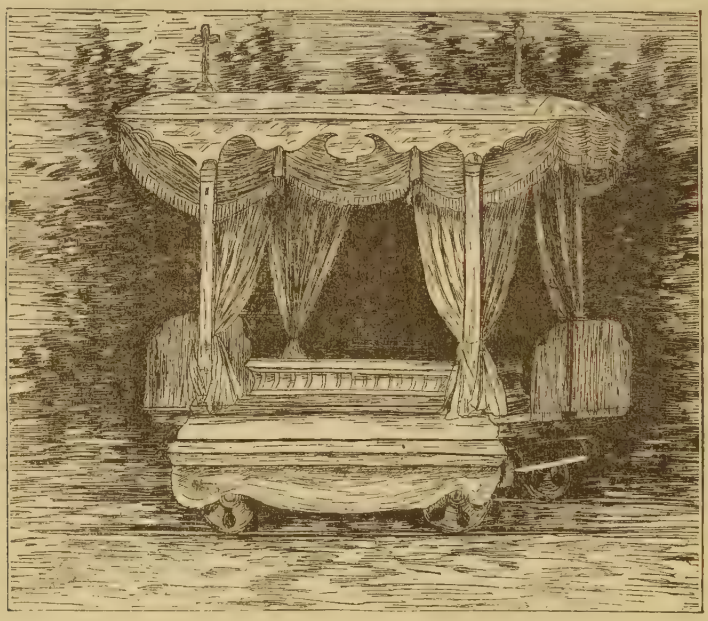
Now, not all these heroes are buried here in San Fernando, but the few that are, having represented politics of such differ-

ent complexions, suggest the thoughts expressed above. Who is to judge which of these men were in the right? It is my opinion, that no more difficult problem will arise at the last judgment, than when these Mexican heroes shall put in their appearance for a final award.

In the cities the cemeteries are well cared for; marble busts and monuments mark the resting-places of famous dead, while tiers of sealed cells of masonry hold the remains of many more. But in the country it is different, and they fall into terrible neglect. In obedience to custom, that ordains that no grave can be held longer than for a certain term of years, the grave is opened, and room made for another occupant at the expiration of the time in the deed. Once dead, forgotten. After a few years their bones are dug up and thrown into a charnel pit in the corner of the cemetery, and their places occupied anew. A spectacle to move one to tears is this, of the last remains of man, of woman, and of youth treated as though but a portion of the meaner clay around them. I have seen grinning skulls, with eyeless sockets, and long tresses yet attached to them, which told that the spirit of gentle woman once resided there, cast out in the charnel pits, to become the sport of the elements and the scorn of beholders. These ghastly emblems of death are too often the ornaments of altars and niches in the churches, and they may be seen ranged in rows upon churchyard walls, and piled up at the bases of crosses and at the feet of shrines. But, little by little, Mexico is purging herself of these emblems of a moribund Church, and they will soon cease to offend the senses of the traveller in any part of the republic.

When horse-cars were first introduced into the city of Mexico, Señor E——, the manager of the lines, conceived the plan of purchasing all the hearses. Then he put funeral cars on the branch running to the cemetery, and the result was that everybody wishing to bury in consecrated ground was at his mercy. It soon, however, came to be the fashion to visit the graveyard in the horse-cars, and all except the very poorest people might avail themselves of this privilege. A funeral procession of this sort passed me one day in the Plaza, the car draped

in white, the white coffin exposed to the glare of day and the gaze of the populace, the horses with nodding plumes driven by a spruce young man in conventional uniform, and the car containing the "mourners" gliding smoothly over the rails. The price for service is graduated to suit the taste and necessity of every one, being from above one hundred dollars down to as low as three, depending upon the number of horses, equipment of the hearse, and number and livery of attendants.



A FUNERAL CAR.

Of the many churches in the city, all equally attractive in their internal decoration, no one is more so from its exterior ornamentation than that of San Hypolito, not far from the Panteon. It was rebuilt in 1599, where, it is said, Cortés once had a hermitage, in commemoration of the expulsion of the Spaniards from the city. On the corner of the wall enclosing the church is a carving in stone, representing an eagle flying away with an Indian. Whether it is intended to convey the

idea of victory for the Indian or of defeat, of the rapacity of the conquerors or the translation of the Aztec to realms of supernal bliss, has never been satisfactorily explained. Near this church, tradition has it, was the ditch which Alvarado leaped, on that night of general disaster, the *Noche Triste*. Commander of the rear guard, he was one of the few who escaped, and claimed to have owed his life to a leap across one of the canals, from which the bridge had been removed, in the causeway leading to Tacuba. But Bernal Diaz, writing fifty years after the events of that night, says that the aperture was too wide and the sides too high for him to have leaped, let him have been ever so active. "As to that fatal bridge, which is called the 'Leap of Alvarado,' I say that no soldier thought of looking whether he leaped much or little, for we had enough to do to save our own lives."

We are on the way now to the "tree of *Noche Triste*," but there are so many objects of antiquity connected with the early history of the city that we cannot avoid frequent halts. The aqueduct of San Cosme, which ends in a sculptured fountain, is beyond the portion of the street known as Buena Vista, where there are some fine houses and gardens of wealthy citizens, and a little farther is the gate stormed by the Americans when they charged down the line of the aqueduct upon the city. Just where the giant water-way turns abruptly westward and stretches out towards Chapultepec is a spot no loyal American should fail to visit, — the cemetery set apart for the burial of foreigners. It is called the American cemetery, though more Germans are buried there than countrymen of ours, and adjoining it is the English portion, both densely shaded, both neatly kept, and fragrant with the flowers planted here in profusion. At the west end, towards Chapultepec, is a monument, a granite shaft with marble dies, on one of which is inscribed, "To the memory of the American soldiers who perished in this valley in 1847, whose bones, collected by their country's order, are here buried"; and on the other, "Contreras, Churubusco, Molino del Rey, Chapultepec, Mexico." It occurred to me that the Mexicans must be a forgiving people, that they allow

such an humiliating reminder of defeat to stand on the border of their chief city. It would have been more generous in our people to have omitted the names of the victories, content to have a simple monument over our brave soldiers; for we need no reminder of that buried past, now that our former foe is marching with us hand in hand to an assured future of prosperity. The cemetery lies just clear of the suburbs, and where the level fertile fields commence. When I was there the freshest grave was that of Colonel Greenwood, who had been assassinated a few months previously, while surveying the line of the National Railroad: flowers were yet fresh upon it.

About a mile from the stone bridge here is the tree we are looking for; it is a charming walk, — or it was that day in April when I first made my pilgrimage, — through fields green with alfalfa and bordered with trees and magueys, and before you are aware of fatigue, after turning a sharp bend in the road, the famous tree rises before you; — a grand old cypress, that would attract our attention were it not surrounded with that halo of history. Its swelling trunk is said to be sixty feet around, though its jagged limbs, blasted by many a storm and worn with age, do not reach far above the little chapel that squats beside it. This chapel was erected in memory of that night of dreadful battle, when the Spaniards, driven like sheep before the hordes of Aztecs, perished as never before in the New World, trodden under foot, with their backs to the enemy. *La noche triste* they called that awful night of black despair, — "the sorrowful night," — and this aged cypress, that still stands in defiance of the assaults of time, *el arbol de la noche triste*, the tree of the sorrowful night. Here, in this village of Popotla, Cortés sat down upon a stone, and wept at the loss of his soldiers; — beneath this tree, it is affirmed by some, — at all events, near this spot. Alluding to this circumstance, an ancient writer sings dolefully: —

> "In Tacuba was Cortés, with many a gallant chief;
> He thought upon his losses, and bowed his head with grief."

The town of Tacuba is about a quarter of a mile farther, and not a great distance beyond is Atzcapotzalco, once the seat

of a native kingdom, which fell with that of Montezuma. No ruins here, or remains of the sacred edifices that existed at the first coming of the Spaniards, save a low mound and scattered fragments of pottery. Both villages are easily reached from the city, and both contain religious establishments, that of Atzcapotzalco being of great proportions.

TREE OF NOCHE TRISTE.

The church, or chapel, standing hard by the tree of *noche triste*, seems abandoned to the Indians, and is very old, — old enough to carry the thoughts back to that sad night of the first of July, 1520. The Aztecs relaxed their pursuit here at Popotla, else not a Spaniard would have remained alive to tell the tale; and, though harassed by the inhabitants of the towns about, the soldiers made good their escape, on the day following, to Otancalpolco, where they fortified themselves in a temple on a hill. Thence, after a brief night of rest, they marched under guidance of a single Indian towards Tlascala, their place of refuge; though not without another battle, in which they came near being annihilated. Upon the hill where they obtained their first relief, and a little time to

dress their wounds, there was erected some years later a church dedicated to Our Lady of Succor, — *Nuestra Señora de los Remedios*, — and this Virgin of the Remedios was a long time honored, and the people made pilgrimages to her shrine. She was a faithful saint, and did all she could for her worshippers; but as she was the saint of the Spaniards, she was deposed in the revolution, and now the Virgin of Guadalupe reigns supreme.

AZTEC POTTERY.

XIV.

THE MEXICANS AT HOME.

IT may have occurred to the reader, by this time, that the great city I have been describing, that cloud-dwelling capital of Mexico, is lacking in population; that its magnificent houses, hotels, and public edifices are tenantless. Yet such is not the case; for at least 280,000 people inhabit there. The reason that I have not before described them particularly is, that I wished to complete each topic as I took it up, to convey to the mind of the reader a distinct and lasting picture.

Before turning our attention to the Mexicans, let me confess that I have many misgivings as to the result. I know that it is the custom to abuse the Mexicans, to affirm that no good thing can, ever did, or ever will, come out of their country. At the outset, let me state that I shall not here indulge in invective. As a traveller who has seen the Mexican in nearly all the existing phases of life, who (coming from a country radically different in its internal life) shared, perhaps, in the customary prejudices against these people, but who has since dispassionately studied them by their works, and through the works of others, I may be permitted to express the belief that my views are substantially correct. But lest I should seem prejudiced, one way or another, I shall mainly present, in the following pages, the opinions of other writers.

Of twelve millions of people comprising the population of Mexico, at least one third are pure Indians, aborigines, indigenous to the soil; one sixth, Europeans and their Creole descendants; and one half, Mestizos, or "mixed" people. According to the latest census (1886), the entire mass of the population is divided as follows:—

Indians (*raza indigena*)	4,500,000
Europeans and their descendants (Creoles)	1,500,000
Mestizos (*raza mezclada*)	6,000,000
Total	12,000,000

As to the peculiarities of this people, let me quote from Señor Don Garcia Cubas, a learned and observant native of Mexico. "The difference of dress, customs, and language," he says, "makes known the heterogeneousness of the population. . . . . The habits and customs of the individuals who compose the Creole division conform in general to European civilization, particularly to the fashions of the French, with reminiscences of the Spanish. Their national language is Spanish; French is much in vogue, whilst English, German, and Italian are receiving increasing attention. The nearest descendants of the Spaniards, and those less mixed up with the native race in Mexico, belong by their complexion to the white race. The natural inclination of the mixed race to the habits and customs of their white brethren, as well as their estrangement from those of the natives, is the reason that many of them figure in the most important associations of the country, by their learning and intelligence, including in this large number the worthy members of the middle classes. From this powerful coalition, the force of an energetic development naturally results, which is inimical to the increase of the indigenous race (the Indian), not a few of the natives themselves contributing to this fatal consequence, who, by their enlightenment, have joined the body I have referred to, thereby founding new families with the habits and customs of the upper classes."

From this we may infer the gradual extinction of the native Indian race, by gradual absorption into the more powerful mixed class; yet, although they are slowly melting away in the north, in the south they are increasing in number, until the country south of the capital is to a great extent in their possession.

The original stock of Mexico is the Indian, and, in pursuance of my plan, — to commence at the bottom and work upward, — we will inquire wherein the Mexican Indian is peculiar.

It need not be stated, for the information of American readers, that the Indian is of a brown or olive color; he has little or no beard, is rather under medium height, generally stout or corpulent, with muscular thighs, broad chest, and rather slender arms; he is not over strong, but capable of great feats of endurance, and is the entire reliance of the country for work in the mines and agricultural labor. The Indian, says the German traveller Sartorius, invariably retains his national dress, which is as simple as the whole mode of life of these children of nature. The man wears short, wide drawers of coarse cotton or deerskin, which seldom reach to the knee, and a sort of frock of coarse woollen cloth, fastened around the hips by a belt; a straw hat and sandals complete his dress, which is devoid of all ornament. The females wrap themselves in a piece of woollen stuff that passes twice around the body, but is not closed with a seam; this is girded round the waist by a broad colored band, and reaches to the unshod feet. The upper part of the body is covered with the *huipile*, a wide garment closed on all sides, reaching to the knee, and furnished with two openings for the arms. The hair, tied up with a bright ribbon, is either wound about the head in a thick roll, or hangs down in two plaits; large earrings and bead necklaces complete the attire. The Indians distinguish their tribes by the color and fashion of their simple clothing. Wearing shoes is considered by them a departure from the good old fashion.

MEXICAN INDIAN.
(From a Wax Figure.)

His dwelling is in keeping with his simple person. In the warm, well-wooded regions he builds of wood, and of palm leaves and stalks; on the table lands, of unburnt brick (adobe), with a flat roof of stamped clay supported by beams. Inside the hut burns, day and night, the sacred fire of the domestic

hearth. Near it are the *metate* and *metalpile*, and an earthen pan, *comale*, for baking the maize bread. A few unglazed pots and dishes, a large water-pitcher, cups and dippers of gourd shell, comprise all the wealth, and a few carvings of saints (perhaps) the decorations. Mats of rushes or palm leaves answer for seats, table, and bed, and for their final rest in the grave. A mattock and hoe, nets perhaps and strings, the weaving apparatus of the woman (a few sticks), and the scanty provisions, hang on the wall and from the rafters. The Indian still uses the ancient *temascale*, or steam-bath, — a vaulted adobe oven, just high enough to sit upright in, where stones are heated and water poured on them to generate steam, — and practises simple remedies for his few diseases. His food is mostly vegetables and fruits. He distils and brews his own liquors; on the coast, palm wine, and rum from sugar-cane; on the table lands, *pulque* from the agave, the fermented juice of the *tuna*, or prickly-pear, *chicha*, *chilote*, etc. Maize is their support, and this is planted everywhere.

After the conquest of Mexico by the Spaniards, the lands of the Indians became the property of the invaders; but upon remote ranges of mountains, and in unhealthy coast regions, they retained land, because the conquerors feared to settle there in scattered bodies. A reactionary Spanish law granted to each Indian village a free possession extending 600 varas (1,800 feet) from the church, in all directions, and in addition to this a square tract of 3,600 feet base line. This they still possess and can cultivate in common, though many prefer to work on plantations as day-laborers. The Indian is always in debt, and as he can never leave an estate until he has worked out his indebtedness, he exists in a state of peonage which is a mild sort of slavery. They carry on few branches of industry, but have great capacity for making ornaments, and for manufacturing "antiquities," which are bought by unsuspecting travellers and deposited in museums as genuine relics of the past.

These people are trained porters and bearers of heavy burdens; they will sometimes go eighty or a hundred miles to market, and often thirty or forty, with loads of provisions,

chickens, etc., that will bring only a dollar or two at the most. They have a peculiar dog-trot, which they keep up hour after hour and day after day; some of the Indian couriers, through their knowledge of paths and by-ways, have been known to accomplish the distance between certain points in less time than the mail-coach. Their ordinary load for a long journey is from seventy-five to a hundred pounds, but in the mines they climb up the primitive ladders — merely notched poles — bearing four hundred and even five hundred pounds of ore.

INDIAN WOMAN.
(From a Wax Figure.)

The Indian is contented with the little he gets, and if a little remain it is almost invariably spent at the *pulquerias* — the liquor-shops — before he departs for home. Although the Indians form villages and settlements by themselves, and in the city of Mexico dwell in a suburb apart from the whites, yet they freely mingle in the streets, "a people within a people," says the authority from which the preceding account has been mainly drawn; they remain apart, interfering in none of the affairs of the upper classes, and confining even their quarrels to their own class. Humble and obedient, their self-abasement is such that they accept and apply to themselves the reproach of the whites, a term that implies that they have no understanding. A white man is to them a *genie de razon*, — a man of intelligence, — while the Indian is called a *gente sin razon*, or a man without reason, — of no understanding.

Further research into the Indian question may prove tedious to the general reader, and so we will leave the subject, merely pausing to state that the difference between the nomadic Indian of the Western prairies and the agricultural Indian of Mexico is hardly greater than that existing between the Aztec of the valley of Mexico, or the Yaqui of Sonora, and the native of

Tehuantepec and Yucatan; in a word, there are Indians and Indians. We need only note that the languages and dialects spoken by the various Indians of Mexico number one hundred and twenty, besides sixty more which are known to have become extinct.

The race which was imposed upon the country at the coming of the Spaniards should be the next to attract our attention, since it is from the union of this with the aboriginal that the representative Mexican is produced. The Creoles (*Criollos*) are either Europeans or of European parentage. At the time of the revolution, 1810–1821, a term of contempt was used in speaking of the Spaniards; they were called Gachupines. The Creoles were at one time the gentry, the aristocracy of Mexico, and even have aspirations in that direction now. In them, says Sartorius, we recognize the features of the Spaniard of the south, the conquerors and first colonists having been Andalusians. They are gentle and refined, yet vain and passionate, excellent hosts, delightful companions, addicted to gaming, and passionate admirers of the fair sex. The latter number among them many exceedingly lovely women, with dark complexions, large, languishing eyes, lithe and delicate forms, and dainty feet and hands. They are so closely immured in their prison-like dwellings that the foreigner has few opportunities for judging of their character; but I will venture to affirm that it will compare favorably with that of their sisters of more northern climes. The daughters are closely watched by the mothers, who rarely trust them alone out of their sight. This may or may not be necessary; *materfamilias* thinks it is; the wicked young man, against whom all these precautions are taken, thinks it cruel.

"Domestic life is very different from that of the Germanic races. The life led by the ladies in their boudoirs savors something of the Oriental; they work beautifully with the needle, weave and embroider, play and sing; the intellectual element, however, is wanting, the understanding and the heart are uncultivated, and sensuality therefore easily obtains the upper hand. . . . . Taken altogether, the morals are more lax even

THE BEAUTIFUL CREOLE.

(From a Photograph.)

than in Spain, and yet less corrupt than in the large cities of Europe." This opinion is given by a writer who is commended in unqualified terms by Señor Cubas, himself a Mexican, or I should have much hesitancy in accepting it. Personally speaking, I saw no indication of this laxity of morals among the better classes, although among certain Indian tribes women of easy virtue are the rule rather than the exception.

In their dress, the Creoles differ in no important particular from the French, the ladies especially conforming to the latest fashion plates from Paris, with this exception, that at morning mass, and in making unceremonious calls, they wear that graceful Spanish head-dress, the *mantilla;* and the gentlemen, when on horseback, or in the country, adopt the picturesque riding costume of the Mestizos. They have many lovable traits: their goodness of heart, their cheerful endurance of the petty ills of life, the respect and courtesy paid by children to their parents, and the frankness with which a stranger is received by the family, who all combine to please and entertain him, — these are but few of their amiable qualities.

The deeper we get into this subject, the more delicate becomes the nature of it. We now approach that third race (so called) of Mexico, the Mestizo, or mixed people. Again, although I have already expressed myself regarding the Mestizo character, I shall doubt my ability to deal with it satisfactorily, and shall present the opinions of one longer a resident of Mexico than myself.

"The noblest of the Aztecs," says the author of *Mexico and the Mexicans*, "fell in battle with the Spaniards; their property fell into the hands of the victors, who at the same time became possessed of the families of those who had fallen; the rude warriors married the dusky daughters, who were rendered their equals by baptism. It was not considered a *mésalliance* to marry a noble Aztec girl. The sons of Montezuma, who were educated in Spain, received the title of Count. The Indian aristocracy adopted Christianity, and became amalgamated with the new population. It was not so with the poorer classes, who from the earliest periods had been subjected to the Indian aris-

tocracy, and at the conquest only changed masters. Nevertheless, countless mongrels were born, some in lawful matrimony, some *per nefas;* and during three centuries the priest and the monk, the soldier and the young Creole, have continued to engraft the Caucasian stock on the wild trunk. Thus arose the numerous Mestizo population, which has inherited in part the brown hue of the mother, but also the greater energy and more vigorous mind of the father.

MESTIZO.
(By a Native Artist.)

"The Mestizo, then, is properly the offspring (not always properly begotten) of white father and Indian mother. He has an inborn originality, and is the representative of national customs and peculiarities. He is a magnificent horseman; one might take him for an Arab, as, lance in hand, he rushes past upon his light steed. In the warmer regions he wears (on Sundays) a carefully plaited white shirt, wide trousers of white or colored drilling, fastened round the hips by a gay girdle, brown leather gaiters, and broad felt hat, with silver cord or fur band about it. The peasants, or *rancheros*, are usually distinguished by the *calzoneras*, or open trousers of leather ornamented with silver, with white drawers showing through, a colored silk handkerchief about the neck, and the *sarape*, — the blanket-shawl with slit in the centre, resembling a herald's mantle. The women seldom wear stockings, though their dainty feet are often encased in satin slippers; they have loose, embroidered chemises, and a woollen or calico skirt, while the *rebozo* — a narrow but long shawl — is drawn over the head, and covers the otherwise exposed arms and breast."

These are the elements that go to make up the Mexican people: Indians, Creoles, Mestizos. The last constitute the great majority of *rancheros*, or farmers, and *arrieros*, or mule-drivers;

and in this latter capacity, often in the charge of great *conductas*, or trains, of treasure-laden animals, have always proved honest and trustworthy messengers.

The Mestizos are of pleasant countenance, when of good extraction, of full figure, with complexions which, though swarthy, are yet fresh, and sometimes rosy. As servants, the Mestizos are generally faithful, not over fond of ablution, but having high regard for their masters and mistresses. Always aspiring, the Mestizo is rapidly drawing away from the Indian progenitor, and assimilates with the white race; it is said that Mestizos of the third generation cannot be distinguished from the Creoles themselves. As politicians, they have ever been successful, taking to law, also, as naturally as to the profession of arms. Not alone in point of numerical superiority, but as regards the real possession of power, through peculiar fitness for holding political office, the Mestizos are the dominant people of Mexico to-day.

But there is a class of Mestizos which a truthful delineation of Mexican society compels me to mention, not so creditable to Mexico by half as the poorest and most degraded of the Indians. I speak of the *Lépero*. The union of the worst of the Spanish with the worst of the Aztec race produced a progeny that exhibited all the vices, without a single virtue, of the parent stock. Time, instead of ameliorating, has hardened him, and the miserable lepero is the vilest specimen of humanity, the most degraded, most devoid of principle and honor, to be found on the American continent. And what is the lepero? Let Brantz Mayer, a close observer of the Mexicans for quite a length of time, answer this question: "Blacken a man in the sun, let his hair grow long and tangled, and become filled with vermin; let him plod about the streets in all kinds of dirt for years, and never know the use of brush or towel, or water even, except in storms; let him put on a pair of leather breeches at twenty, and wear them until forty without change or ablution; and over all place a torn and blackened hat, and a tattered blanket begrimed with abominations; let him have wild eyes and shining teeth, features pinched by famine into sharpness, and

breasts bared and browned; combine all these in your imagination, and you have a recipe for a Mexican lepero."

INDIAN SERVANT.

In fine, the lepero is the most worthless kind of proletarian, a beggar whom no one can escape from, and whom no one can intimidate. Cortés mentions the swarms of beggars that existed in the Aztec capital in his time; they are also spoken of by Humboldt; they were the terror and disgust of every viceroy, except Revillagigedo, who, in the latter part of the last century, successfully dealt with them. In the revolutionary period they committed unheard of atrocities, and upon the entry of the American troops into Mexico it was the leperos who, let loose from the jails, murdered and pillaged friend and foe alike. To-day we find them on every street and corner, curled up in the portals of the churches, sleeping at noon in the shade of every sanctuary. It is on feast days that the lepero particularly shines, as witness this portraiture by the clever Sartorius: —

"The lepero has actually spent a *medio* (six cents) in order to convert the crusts of dirt, which had stood in bold relief on his face, neck, and hands, into the natural brown. . . . . Many of them are duly married, but the majority of them certainly not. They feel, however, the necessity of sharing their lot with a gen-

tler being, and surely this may be achieved, as there are plenty of damsels of this class, who, like the male lepero, are enamored of freedom. Without the blessing of the priest, they live perhaps happier than with it. . . . . No popular festival, no church consecration, no marriage, takes place in the suburbs, without some of the leperos wounding or killing each other. No one interferes as the fight goes on, each with a knife in one hand and a cloak wrapped about the other, until one falls, and they all disperse, leaving him with his weeping mistress. . . . . These proletarians consist almost exclusively of Mestizos, — the Indians, poor as they seem to be, are not regarded as such, — their number mainly recruited from illegitimate children."

As to stealing, the lepero is a thief from his mother's arms. It is a fact, and I state it as confirmed to me by the chief of police, that nine out of every ten of the boys and men found in the streets of Mexico peddling papers or lottery tickets, or soliciting light employment generally, are thieves and pickpockets, and only approach you on the lookout for an opportunity to plunder you. So numerous are they that the police cannot distinguish the bad ones, as in the United States and in European cities, but class them all as capable of any crime.

The pawnbrokers are the great receivers of stolen goods in this country; the so-called *empeños* are pawn-shops. Washerwomen of the lepero class pawn the clothes of unsuspecting and trusting Americans when given them to be washed, and more than one engineer has had to visit some *empeño* and pay down the cash for garments that were already his to get them out of pawn. Either one by one, or all at a time, these garments are gathered into the maw of the Mexican " uncle."

Along the line of the great Mexican Railroad, from Vera Cruz to the city of Mexico, nothing is left outside after dark, — nothing that the strength of two men can lift. Even the car-couplings are taken inside the station and locked up. This road once introduced air-brakes on their cars, but the workmen punched holes in the pipes and stole the tubing; so they were taken off. On the National road, and doubtless on all others also, they stole the bolts that fastened the rails to the ties, until they were finally

riveted on. One of a gang of workmen undertook to steal the cap off a cartridge of dynamite, with the result that he and several others went to their reward.

Brantz Mayer relates a good story of an Englishman, who, while walking one of the principal streets of Mexico, felt his hat lifted gently from his head, and looked upward just in time to see it sailing aloft, suspended by a hook to a line which the sagacious lepero had let down from a lofty window. He also relates that some years ago three Mexicans stopped another, in broad daylight, and took away his cloak. "His cloak gone, he naturally imagined that the robbers had no further use for him, and attempted to depart. The vagabonds, however, told him to remain patiently where he was, and he would find the result more agreeable than he expected. In the course of fifteen minutes their accomplice returned, and, politely bowing, handed the gentleman a *pawnbroker's ticket*. 'We wanted thirty dollars, not the cloak,' said the villain; 'here is a ticket, with which you may redeem it for that sum; and as the cloak of such a caballero is unquestionably worth at least a hundred dollars, you may consider yourself as *having made seventy* by the transaction. *Vaya con Dios!*'"

While I was in Mexico, the following incident was related to me, among others, illustrating the total depravity of the lepero. A good missionary had taken in charge a young man who showed evidences of conversion, and he was installed as janitor of the chapel. I suppose that (if missionaries ever do such things) this good man would have sworn by this janitor. While this converted Mexican was in charge an organ arrived; a day was fixed for the exhibition of this instrument, and the heart of the missionary warmed with pleasure at the thought of feasting the ears of his friends. The evening arrived for the exhibition, the friends arrived, but when the curtain was lifted that concealed the instrument of music it was not there! Neither was the janitor: he had gone and *pawned* the organ!

As the distinction between *meum* and *tuum* is altogether ignored by the leperos, so also life with them is not regarded as sacred; they even look upon death by shooting as honorable,

and rather court it than otherwise. It perhaps comes of such perfect familiarity with fire-arms. Every lepero of distinction carries a revolver. Beg, borrow, or steal, a pistol he must and will have, and carry it in as exposed a place as possible. Should he arrive at the dignity of owning a horse, — though this is extremely improbable, — the lepero becomes a most consummate fop, not only in regard to his horse, but to his equipments. He may parade himself with an incrustation on his skin of seven years' dirt, and with a shirt that has survived six months' continuous wear, but he will invariably carry a large nickel-plated revolver hanging at his side, and showing half its length of barrel below his jacket. To the butt of this revolver he will generally have a cord and tassel, or a steel or nickel-plated chain attached. If he is on horseback, he will have jingling bits, clanking sabre, and a saddle shining with silver ornaments; but he will never be without carbine or revolver. The result of all this display of fire-arms is, that they are perfectly familiar with weapons in a general way, and think no more of pointing a pistol at a man than at a post. It has almost superseded the knife, though that peculiarly Spanish weapon is not infrequently used.

A LEPERO.

It is a pleasure to me to be able to state that the present government has taken energetic measures looking towards a gradual reformation, if possible, of this worst portion of the criminal class, and the beneficial bullet has disposed of many of those who indulged in the pastime of the highwayman.

Two honest men next claim our attention, and then I have done with the people, except in *genre*, as we may meet them casually on the street, or in our travels. These are the policeman and the water-carrier, — the *aguador*. You meet the former on every corner and in every street, in times of peace; but I

have noticed here the same phenomenon that I have also observed in Northern cities; namely, that when you really need

SERENOS.

one of these policemen, when there is any danger near, there is not one within a radius of half a mile. As a body, the

policemen are efficient and well drilled, courteous and affable. At night, the policeman is furnished with a lantern, which he places exactly in the centre of the street, while he sits in a doorway on the opposite corner, and snoozes at intervals in his sarape, or blanket-shawl. At certain periods he disturbs the nocturnal quiet with ear-piercing whistles; in the smaller cities and provincial towns, he cries the time of night, always ending up with "*Tiempo seréno*," or, "All serene." From this the mischievous Mexican youth have nicknamed him the *Sereno*, although his trim appearance now, clad in neat uniform, is in great contrast to the ancient watchmen, who first acquired, and bore with serenity, this appellation.

But commend to me the honest aguador, who, with his burden of earthen jars, his leathern armor and quaint ways, is the most interesting individual of the Mexican street. All the water of the city being brought over aqueducts, it is only obtainable at the fountains, and the aguador thus becomes the most important personage of the household; and as he is the bearer of gossip and news, he is always most welcome.

Society in Mexico differs little from society in Spain, or in Cuba, or other Spanish-speaking country, so that to describe it would be an unnecessary task. There is one phase of it, however, that has reached a development not surpassed either in the mother country or the Gem of the Antilles. I allude to courtship, or perhaps it may be merely flirtation. From my secure post of observation on the *azotea* of my boarding-house, I often noticed a haggard and emaciated young man, pacing the sidewalk in front of the next house. Seeing him day after day, I inquired the reason of his perambulations in that particular spot, and was informed that he was "playing the bear"; or, in other words, paying his attentions to the fair señorita in the balcony above. *Hacer el oso* is the Mexican for this idiotic performance, or "to play the bear," — from the uneasy walking to and fro in one spot, like a bear in a cage. In his hand the imitator of the bear carries either a cigar or cigarette, with which he conducts a correspondence with his *inamorata*, she replying through the medium of her fan or handkerchief. I

was often told that some of these insensate creatures have been known to play the bear for at least *seven years*, and after all did not succeed in capturing the fair ones who had caused them to appear so ridiculous in the eyes of men.

We have inspected the Mexicans in detail, let us now look at them as a whole, and possibly homogeneous race. Says an English author: "To give a brief characterization of the people of any country is always difficult. Especially is this a difficult task when the Mexican population has to be described. The race is heterogeneous, and what may be true of one part of the country may be utterly untrue regarding that of another section. . . . . One traveller represents the Mexicans as a fine race, possessing all the virtues of the rest of mankind, and some peculiarly their own. Others will assure the reader, on their word of honor, that they have searched the vocabularies of the language in which they write, without being able to pick out a series of adjectives strong enough to express the utter turpitude of these degenerate descendants of a degenerate race."

EL AGUADOR.
(From a Wax Figure.)

That this is strictly true, let me show by inserting some extracts, — first, from the book of the English traveller, Ruxton: "The Mexicans, as a people, rank decidedly low in the scale of humanity. They are deficient in moral as well as physical organization; they are treacherous, cunning, indolent and without energy, and cowardly by nature. Inherent, instinctive cowardice is rarely met with in any race of men, yet I affirm that in this instance it certainly exists, and is most conspicuous; they possess at the same time that amount of brutish indifference to death which can be turned to good account in soldiers, and I believe that, if properly led, the Mexican should on this account behave tolerably well in the field, but no more than tolerably."

A German traveller, Geiger, has a mild fling at the Mexican, as follows: "The Mexicans prefer the French to all other

nationalities; it is an old liking, which the late war has not destroyed, and hardly even diminished. The reasons for this are many. There exists a certain similarity of character between them; they have been reared in the same religion; and last, but not least, the gushing, ceremonious politeness of the Frenchman fascinates the Mexican, whose vanity is easily tickled by these demonstrative though insincere formalities. When questioned as to their fondness for the French, Mexicans will tell you repeatedly that *un Frances tiene educacion*, which by no means implies that a Frenchman is educated, for in that respect they and Mexicans rank much alike, but that the Gaul knows how to embrace *à la Mexicana*, i. e. to fall into his friend's arms as if he were about to wrestle with him, and actively pat him on the back with the right hand of affectionate acquaintance."

Now in these two extracts we see illustrated the previous statement regarding the heterogeneousness of the population, since, although both speak of the Mexican, each describes a radically different type; the first evidently the Indian, the latter the Creole or Mestizo of the upper ranks. One should be careful to discriminate between the various classes of people. I have had my attention called to the fact, that those who have known the Mexicans longest speak of them in the highest terms. Of such well-informed observers was Brantz Mayer, author of several books on Mexico. He says: "I think it exceedingly reasonable that the Mexicans should be shy of foreigners. They have been educated in the strict habits of the Catholic creed; the customs of the country are different from others; the strangers who visit them are engaged in the eager contests of commercial strife; and besides, being of different religion and language, they are chiefly from those Northern nations whose tastes and feelings have nothing kindred with the impulsive dispositions of the ardent South. In addition to the selfish spirit of gain that pervades the intercourse of these visitors, and gives them no character of permanency, or sympathy with the country, they have been accustomed to look down on the Mexicans with contempt for their obsolete habits, without reflecting that they are not justly censurable for traditional usages, which they had no

opportunity of improving by comparison with the progress of civilization among other nations. Yet, treating these people with the frankness of a person accustomed to find himself at home wherever he goes, avoiding the egotism of natural prejudices, and meeting them in a spirit of benevolence, I have ever found them kind, gentle, hospitable, intelligent, benevolent, brave. I speak, however, of the *juste milieu* of society, wherein reside the virtue and intellect of a country. . . . . In fact, regard them in any way, and they will be found to possess the elements of a fine people, who want but peace and the stimulus of foreign emulation to bring them forward among the nations of the earth with great distinction."

This prediction, that the Mexican people needed but "peace and the stimulus of foreign emulation" to bring out their latent energies, is being realized. Mexico is taking a distinguished stand among nations, from which it will soon become impossible for her to recede. I myself, having broken bread and eaten salt with almost every class in Mexico, can truthfully subscribe to the sentiments expressed by the last-quoted author, and do so unhesitatingly. There is more truth in the Mexican's protestations of good will than strangers are ready to credit; he is often so effusive that they lay upon him the charge of insincerity. It may be that he is insincere, that he means utterly nothing when he repeats the ever-ready phrase, *Mi casa está muy á su disposicion, señor,*—"My house, and all it contains, is very much at your disposal, sir"; but he as often means it as not, as I have frequently found, when, far from town or hotel, night has overtaken me near some rancho or hacienda, and I have received the warmest of welcomes from its hospitable proprietor.

XV.

FEASTS AND FESTIVALS. — MEXICAN MISSIONS.

TRAS la Cruz está el Diablo, "The Devil lurks behind the cross," says the Spanish proverb. Nowhere is this more true than in Mexico. Indeed, his Satanic Majesty rarely takes the trouble to conceal himself, but openly thrusts his impudent face into every gathering of a religious nature that takes place. The religion of the present population of Mexico is extremely anomalous; though nominally Catholics, the Indians are mainly pagans, while the Mestizos and the Creoles have little but the outward semblance. Time, as usual, wreaks its revenges. We know in what manner the religion of the Spaniards was imposed upon the conquered Indians, — at the point of the sword, by the fire and rack. We know that they were "converted" to the new faith by the thousand at a time, and were reckoned good Christians as soon as baptized. We do not wonder, then, that after three hundred years of trial the native population should tacitly agree to the overthrow of priestly power and return to their idols, whom they have so long secretly cherished. Yet it seems strange to us that the successors of Juarez and Gomez Farrias, and those of their associates who are responsible for the downfall of the Church, should be allowed peacefully to rule as they do to-day. To be sure, the Church is exhausted; its final struggle was at the time of Maximilian, and when he fell, and its treasures were appropriated to the use of the nation, it lost more than gold, — it lost its *prestige*. Yes, the prestige of the Church is departed, never perhaps to return; its officers no longer command the popular respect, and its sanctuaries are no longer sacred from the touch of impious hands. Yet the priests of to-day are no worse than before, so

far as their morals and faith are concerned; indeed, I believe they are more worthy of respect than formerly, — that their trials have purified them, and that they are capable, perhaps desirous, of wheeling to the right about, and joining the march of progress, leaving behind them the dead and corrupt superstitions that wrecked them and their hopes.

Stripped of their power by the enactments of 1857, the number of churches reduced to just enough to provide for the actual needs of the people, forbidden themselves to wear their priestly robes in the street, or to fill the air with the perpetual clamor of clanging bells, the clergy of Mexico have held a very painful position. Although we recognize the justness and necessity of the laws of reform, yet we cannot but pity those men in holy office when the thunderbolt fell, who now suffer for the sins of their predecessors.

But though religious processions through the street are prohibited in Mexico, the people do not fail to celebrate the feast days and the festivals. They respect not the Sabbath, nor the priest, but they have a sort of reverence for the saints. Of the three hundred and sixty-five saints in the Mexican calendar, not all, fortunately, are entitled to the honor of a holiday; but many are, — enough seriously to interfere with business, and consume the earnings of the people.

I witnessed several such festivities while in the country; but none seemed to me more grotesque and curious than that of Good Friday, when a final disposition was made of the arch-traitor Judas, against whom the Mexicans seem to have a special spite and wreak their vengeance upon him in a number of ingenious ways. All day long men are parading the streets with effigies of the betrayer hanging from poles, and hundreds are sold, especially to the children, who blow up these images with a gusto and delight only paralleled by our small boy on the Fourth of July. Each image, made of *papier-maché*, is filled with explosives, and has a fuse, like a fire-cracker, and is touched off by the juveniles amid great rejoicing. The thing culminates at evening, when immense Judases are hung up in prominent places, generally at the intersection of the streets, and exploded in the

presence of delighted crowds. Then, also, the bells in the towers ring out their chorus of rejoicing, and a peculiar apparatus, also in the cathedral tower, makes a loud, crackling noise, which the crowds understand well to mean the breaking of the bones of the thieves on the cross.

THE LITTLE GODS.

Travellers of forty years ago tell us of the murdering of men guilty of a failure to bend the knee at the approach of the Host, when passing through the street attended by the priests; but such a thing is no longer possible. I was surprised one day, on crossing the Plaza, at seeing everybody drop down upon their knees, and received some very black looks from some

leperos because I did not do the same. As I turned, there swept by a coach drawn by four horses, containing the holy symbol, which the majority of the people yet respect, if they do not reverence.

Now, not all the feasts and festivals of Mexico are of Romish origin. Upon the remains of Aztec idolatry, says a writer, now dead, have been engrafted the baser ceremonies of the Romish Church. Let us go back to the pre-Spanish days, when the empire of Montezuma was in the height of its prosperity. Eighteen months of twenty days each composed the ancient Mexican year, which commenced in February, and every month had its festival. That of February was in honor of Tlaloc, god of storms; in March followed the cruel sacrifice to Xipé, god of the goldsmiths, and a second to Tlaloc, of children, who were drowned to insure abundant rains. In April, the flower-merchants offered garlands to Coatlicue, the Mexican Flora, and later to Centeotl, goddess of maize. On the fifth month fell the solemn festival in honor of Tezcatlipoca, the chief deity, when the bravest and handsomest of the prisoners in Aztec possession were sacrificed. In the same month occurred the feast of Huitzilopochtli, the Mexican war-god, during which another faultless victim was offered up. Tlaloc had a third and last festival in June, and the goddess of salt, Huixtocihuatl, claimed a female victim, when also the populace went hunting in the mountains and upon the lakes. In July a second feast to Centeotl, the Mexican Ceres, came to pass, when another female was sacrificed at the close of the day's rejoicings, just as the sun went down behind the purple hills. Then came the god of trade, and the god of fire, Xiuteuctli, and on the eleventh month the festival of Teteoinan, "mother of all the gods," when a female prisoner was beheaded, then flayed, and the bloody trophy presented to the god of war. In October came the great feast of Teotleco, "the coming of the gods," when the priests scattered maize meal in front of the sanctuary and watched for the sacred footprints of the principal deity. In November, the goddess of the chase, Mixcoatl, was honored, and then followed another great feast to the war-god and his brother, on the last of December. In the seventeenth month the god of hell,

Mictlanteuctli, claimed a nocturnal sacrifice, and the god of the merchants a second feast. The horrid circle of sacrifices was completed on the 1st of February, when all the fires of the city were extinguished, and kindled anew from the flame on the altar of the god of fire. On the last of February took place the most impressive of all the festivals, that of the Teoxihuitl, or "divine years," at the beginning of the Aztec cycle, which fell due only once in a century (fifty-two years) and was celebrated with great solemnity.

MOTHER OF THE GODS.

However much this list of the feasts and festivals of the ancient Mexicans is indebted for its length to the imagination of the Spanish chroniclers, it will at least be evident that these people had quite sufficient for all intents and purposes before the imposition upon them of those pertaining to the Roman Catholic Church. The Spanish clergy labored many years to abolish the remembrance of them, and to substitute their own less barbarous fasts, feasts, and symbols. Although the Indian long clung to his cherished idols, he finally transferred his allegiance from the native to the foreign gods, and entered with great gusto into the celebrations and processions which the clergy got up for his edification. These at last came to be such an intolerable nuisance that government abolished them, so far as processions were concerned, and now, except in certain isolated districts, no religious pageant is allowed to parade the streets.

Besides the feast-days pertaining to the Romish calendar, the following are the legalized holidays, or memorials, on which the national flag is displayed: —

Jan. 23, King of Spain; Feb. 5, anniversary of the Constitution of '57; Feb. 22, Washington's birthday; March 14, King of Italy; March 21, birthday of Juarez; 22, of Emperor of Germany; April 1, opening of Congress; May 5 (*Cinco de Mayo*), victory at Puebla, over the French; May 8, birthday of Hidalgo; May 15, taking of Queretaro; 31, closing of Congress; June 1, Italy; June 8, birthday of President of the Republic (Gonzalez); 21, taking of the city of Mexico, 1867; July 4, Independence of the United States; 9, of the Argentine Republic; 14, storming of the Bastile; July 18, death of Juarez; 20, Independence of United States of Colombia; 28, of Peru; 30, death of Hidalgo; Sept. 15, Independence of Guatemala; 15 and 16, Independence of Mexico (*Grito de Dolores*); 16, opening of the Senate; Nov. 15, birthday of King of Belgium; Dec. 15, close of the Senate.

But to return to our original question, What is the present religious status of the Mexican Indian to-day? Practically, says a writer who studied them long and thoroughly, "there is not much difference between the old heathenism and the new Christianity. We may put the dogmas out of the question. They hear them, and believe in them devoutly, and do not understand them in the least. They receive the Immaculate Conception, as they have received many mysteries before it; and are not a little delighted to have a new occasion for decorating themselves and their churches with flowers, marching in processions, dancing, beating drums, and letting off rockets by daylight, as their manner is. The real essence of both religions is the same to them; they had gods to whom they built temples, and in whose honor they gave offerings, maintained priests, and danced, — much as they do now, — that their divinities might be favorable to them and give them good crops and success in their enterprises. This is pretty much what their Christianity consists of. As a moral influence, working upon the character of the people, it seems scarcely to have had the slightest effect, except in causing them to leave off human sacrifices, which were probably not an original feature of their worship, but were introduced at a comparatively late time, and

had already been abolished by one of the kings of the valley of Mexico."

Without denying that the Catholic Church has the ability to institute a reform, and has within its folds upright and pure-minded men enough among its clergy to carry it out, yet up to the present time it has not chosen so to do. Upon the institution of the Laws of Reform the people were released from the grasp of the ecclesiastical courts, and the vast majority, though nominally Catholics, were in danger of lapsing into infidelity. It is not my wish to criticise or condemn, for I look upon the Church of Mexico of to-day as the victim, to a great extent, of the past, chained and shackled by the enactments and superstitious ignorance of its founders. But if that Church ever cherished the wish to elevate and regenerate itself and its worshippers, it neglected the occasion when, the French usurpers banished and internal rebellions quelled, peace finally settled down upon the distracted country. Then was the golden opportunity, which, had it been embraced, would have carried Mexico farther onward towards its goal in the path of progress and enlightenment than electricity or steam.

The three great civilizing forces of Mexico, the railroads, telegraphs, and an active religion, are extraneous, — from without the borders of the country. God and Liberty, *Dios y Libertad*, was the watchword of the republic in those times that tried the souls of Mexico's bravest sons; but liberty to worship God, except after the manner prescribed by the mother Church, was not for a moment entertained.

The first copies of the Scriptures,[1] it is said, entered Mexico with the invading American army, in 1846; but the example of

[1] The total number of the Scriptures circulated in Mexico up to December 31, 1882, was, as near as can be calculated, 252,898 copies. The British and Foreign Bible Society had several agents in Mexico and a central depository in the capital, until the year 1879, when the remaining stock was purchased by the American Bible Society, which has since carried on the work alone. At present, the central depository and office of the agency of the American Bible Society is situated in Calle de Vargara, Mexico City, and the agent in charge is H. P. Hamilton. The open Bibles in the show windows are read by many people, and supplies are being constantly sent out to the colporteurs and to sub-agencies in all parts of the republic.

our heroes of that war, — their courage, high devotion to duty, the respect for the rights of, and their forbearance towards, the conquered people, — alone caused many Catholics to become sceptics. The firm stand of the patriot President, Juarez, encouraged the friends of mission work in this country. In September, 1862, we find the Rev. James Hickey, a Baptist minister, laboring in Matamoras as an independent missionary, and in the November following in Monterey, the northern capital, preaching from house to house and distributing Bibles. On the 1st of March, 1863, he delivered the first Protestant discourse to the public which was ever heard in Monterey, and in that year received as an assistant, who eventually became his successor, the Rev. Thomas M. Westrup, who was appointed as missionary by the American Baptist Home Mission Society of New York.

A VENDER OF HOLY RELICS.

At present there are fifteen Protestant missions in Mexico, representing twelve Christian bodies. These entered the field in the following order: Baptists (1863), Church of Jesus (1869), Quakers (1871), Presbyterians (1872), Methodist Episcopal Church South (Border Mission 1872, Central Mission 1873), English Independent Mission (1872), Methodist Episcopal (1873), Southern Presbyterians (1874), Associate Reformed Presbyterians (1878), Congregational (1880), Independents (1882), and Southern Baptists (1882).

By way of explanation, it should be observed here, that Miss Rankin, a noble Christian woman, who had been laboring at Brownsville since 1855, crossed the Rio Grande about a year ahead of the Baptists. She at once began the establishment of Christian schools, and soon after, by the assistance of her own

trained workers, she established several congregations in the vicinity of Monterey. She was in fact like a bishop among her people, doing a thoroughly good work. Later, her mission was passed over to the American Board of Commissioners for Foreign Missions, who, in turn, resigned that part of their work to the Presbyterians about 1875.

After a lengthy correspondence with parties now in the field, we find that the Baptists were the first to enter Mexico in a formal way. But we must not fail clearly to state that a most valuable work of preparation was done by the American Bible and Tract Societies, as early as 1847 and 1848. These worthy bodies sent colporteurs in the wake of the American army, who went everywhere "sowing the seed" which Christian churches are now gathering.

Between the years 1867 and 1870, several of the Catholic clergy seceded, and in 1871 the Rev. H. C. Riley, a brave and independent Protestant Episcopalian, furnished with funds by the American and Foreign Christian Union, and with means of his own, obtained a foothold in Mexico City.

Then, in 1872, the Presbyterians sent missionaries to Zacatecas, and the Congregationalists but little later followed. Their preacher in Ahualulco, State of Jalisco, the Rev. J. L. Stephens, was brutally murdered by a mob, March 2, 1874, and was thus the first martyr to the cause in Mexico.

The Methodists, through the labors and visits of Bishop Haven, Dr. Butler, and others, early secured, in 1873, a portion of the old and vast convent of San Francisco, and firmly established themselves in the city of Mexico, whence their missions have spread like a prairie fire, and they are probably the most numerous body of Protestants in Mexico. Under the present energetic guidance of the Rev. J. W. Butler, a large-hearted, earnest Christian, (to whom I am indebted for these hitherto unpublished statistics,) their labors have prospered exceedingly. Sunday and day schools have been established; a printing-press is in active operation, and an illustrated paper, the *Abogado Cristiano*, has been put in circulation, as well as an annual (*Anuario*), and numberless tracts, in the Spanish language.

The Methodist Church South has also an able director in the person of the Rev. William Patterson, who has likewise occupied several valuable fields for Christian effort. The statistics of the Presbyterian missions have of late been carefully compiled; their force in the field consists of eight in Mexico

MISSION MAP OF MEXICO. — 1883.

City with ten native helpers, ten in Monterey, five in Zacatecas, one native preacher in San Luis Potosi, and two in Jerez; total membership of all its churches, up to 1883, 7,100.

The Methodist Church is now operating from the following centres: Mexico City, Orizaba, Puebla, Pachuca, Miraflores, Queretaro, Guanajuato, and Leon. There are 17 foreign mis-

sionaries including wives, 5 ladies of the Woman's Board, 5 ordained and about 20 other native helpers, 850 communicants, and over 2,000 probable adherents, in 34 congregations. There are 14 Sunday schools, with 675 scholars; 13 day schools, with 600 scholars; 10 church edifices, and 25 other places of worship. There are $120,000 of church property, and two presses in use. Two periodicals are issued, the Illustrated Monthly, having a circulation of 2,500 copies, and the Sunday School paper, a circulation of 1,800 monthly. The total number of pages issued in 1882 was 2,470,445.

The centres of the Methodist Church South are Mexico City, Puebla, Oaxaca, Toluca, and Leon. They issue two monthly papers, and are giving due attention to educational work.

In 1883 the statistics of these twelve Christian Missions, kindly furnished me by Dr. Butler, are as follows: —

Foreign missionaries, including wives	69
Foreign female missionaries of Woman's Boards	16
Native laborers ordained	40
" " un-ordained	163
Congregations	264
Communicants	13,096
Probable adherents	27,300
Sunday schools	130
" " scholars	4,654
Day schools	82
Male pupils	1,570
Female pupils	1,516
Church edifices	45
Other places of worship	219
Probable value of church property	$462,850
Presses in use	11
Periodicals issued	12
Total circulation of all	14,000
Pages of religious literature issued in 1882	3,570,445
Theological students	36

There has been little display of sectarian bitterness, the different denominations recognizing the importance of resolute mutual

endeavor. In the apportionment of Mexico for most effectual work, the northeast, including Monterey, has been taken by the Baptists; Chihuahua and the northwest by the Congregationalists; the Presbyterians are mainly in the central States, and the Methodists in the valley of Mexico and to the south of it.

I cannot find better words in which to conclude this statement of mission work than the following, by the Rev. S. T. Wilson.

"It does not require a long residence in Mexico to impress one anew with these truths: —

"1. This is a transition epoch in the history of the country. A half-century of struggle with foreign domination and with ecclesiasticism, resulting in the apparently firm establishment of a republic and the complete divorcement of Church and State, has at last given place to peace. Mexico's pulse beats more normally than ever before. Her energies, instead of finding their vent in rebellions, are now devoted to arts of peace. Encouraged by this peace and by the government, foreigners are investing their capital and enterprise in railroads, mines, and manufactories. Steam and electricity render the success of rebellions almost hopeless. The scream of the locomotive is breaking even the profound quiet of the snow-crowned mountains. The burros and cargadores, Mexico's traditional burden-bearers, look on in wonder as their occupation vanishes. The electric light in the Grand Plaza of this city shines on excavated columns and sculptures of the old Aztec temple, as well as on the hoary cathedral and deserted Inquisition building, as if to rebuke the deeds of darkness of the past. Just as marked is the transition in religious matters. The more intelligent liberals, disgusted with 'The Church,' are naturally making their transit into infidelity. The common classes are more and more asserting their liberty of conscience. Mediæval bigotry has to struggle with modern liberalism in a constantly increasing number of towns. The Bible and its religion are daily growing in favor.

"2. Rome will not make the right use of this transition period. As changeless as the pyramids, as remorseless as the grave, that Church remains the same. Mainly responsible for the continuance of the dark age that has so long enveloped Mexico, she makes every endeavor to perpetuate that darkness. The patron of slavery, she has bitterly resisted every step toward liberty. The direct *cause* of Mexico's immorality, so incred-

ible in its extent and baseness, she would gladly burn all who teach the truth. The National Museum may, with reason, enclose within the same walls the blood-stained sacrificial stone of the Aztec paganism, and two skeletons of victims of the Inquisition. Martyr blood has consecrated several churches in Mexico. . . . .

"3. That the necessary conclusion is that the opportunities and responsibilities of the Mexican transition belong to Protestantism. The door is wide open."

The Mexican government guarantees the protection of all religious denominations, yet there have been many disturbances and frequent murders. The first week I was in Mexico I met two missionaries who had been chased out of Queretaro by a mob incited by the bishop of that city. Though the government vindicated its honor and supremacy by returning them under the protection of troops, yet on the withdrawal of the latter they were left in the same danger as before.

A few weeks later, a native missionary was set upon and stabbed to death by a mob of religious fanatics, near Apizaco, on the principal railroad of Mexico, and nothing was done to punish them. A month later another native preacher was shot at, near the ancient city of Tezcoco, and then lodged in jail upon complaint of the very men who attempted his life. And his accusers? They are pursuing their peaceful vocations unmolested, ready to renew the fight whenever opportunity offers.

It is not in the large cities that these outbreaks occur, as a rule, but in remote settlements in the country, where the people yet blindly follow priestly counsel. But year by year Mexico is growing more enlightened, and newspapers and books are increasing in circulation with great rapidity. In the republic there are some twenty large libraries, containing in all 236,000 volumes, and private libraries with from 1,000 to 10,000 volumes each, and collections of rare manuscripts.

There were published, in the year 1874, 168 magazines and pamphlets, of which 18 were scientific, 9 literary, 2 artistical, 26 religious, and 118 political. In 1882 the newspapers published in Mexico numbered 283, of which 94 appeared in the capital.

They printed in the aggregate 378,096 copies, with a total circulation of 46,778,858 copies. Of these, there are two in the English language, "The Two Republics," owned and ably edited by Mr. J. Mastella Clarke, and "The Mexican Financier," a weekly bilingual journal, founded by a New York gentleman, and conducted by young Boston journalists of great promise and ability.

Religion and politics, and sometimes education, often go hand in hand, so it will not seem a wide departure from the subject to mention that politicians, even statesmen, are in rather bad odor in what is called "society" in Mexico. And this society, like the blood of the people composing it, is decidedly *mixed*, although the Creoles and those of Spanish birth, and especially those loyal to the Church, are its leaders. It is not considered a reproach to be looked down upon by society, for each grade of this heterogeneous people has led it by the nose, — even the Indian, when Juarez was President. Manuel Gonzalez is said to have Indian blood in his veins, and Diaz, the great power behind the throne, and which he fain would constantly occupy, is likewise a Mestizo. The politicians, however, like Romero, Mariscal, and a small host of other famous Mexicans, comprise the more advanced scholars of the country.

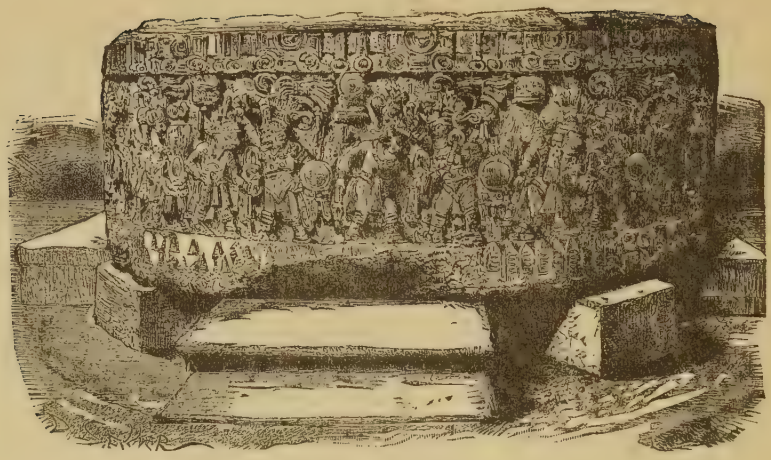
XVI.

A DAY IN THE MUSEUMS.

ONE need never be at loss where to go in Mexico for evidences of its past civilization, as some object hoary with antiquity rears its head at every corner. In a portion of the immense building known as the Palace is the Mexican Museum, *El Museo Nacional*, into which are gathered all the "finds" in archæological fields. Entering the court, one sees, through a drapery of vines, the famous "sacrificial stone," occupying the centre of a lovely garden of flowers; beyond and above it towers the once-dreaded Huitzilopochtli, the great war-god of the Aztecs; while each side is flanked by a statue, the one on the left obtained in Tlascala, and that on the right in Yucatan. A nondescript monument rises in the eastern part of the garden, with frogs and snakes of stone squatted and coiled about its base; idols lie scattered over the pavement of the courts and in the shrubbery, and images of stone and marble, possessing great value for their antiquity and the skill shown in their workmanship.

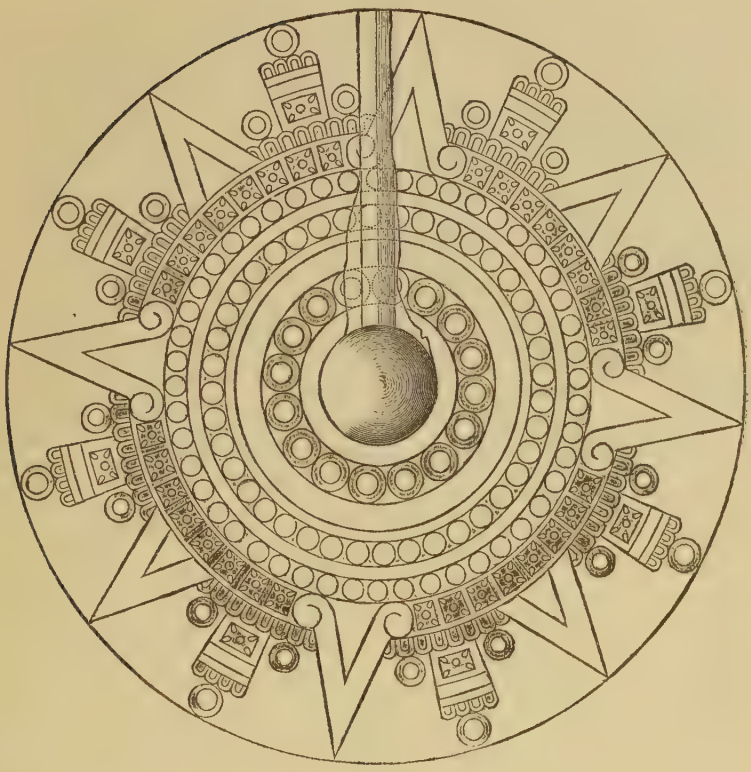
The immense sacrificial stone upon which, according to historians, so many thousand victims have been offered up, is worn and polished by the weather; while the statue on the right — of Chaacmol, the tiger-king, discovered by Dr. Le Plongeon in the wilds of Yucatan — is becoming covered with a pernicious discoloration.[1] Poor Chaacmol! to remain buried so many years; to be unearthed by an enterprising archæologist; to be destined for the United States, but finally to rest ignominiously in this court, half hidden by surrounding plants, and growing green with exposure to elements from which he had so long been protected.

[1] See page 108.



THE SACRIFICIAL STONE.

And Huitzilopochtli, — a sweet name to roll under one's tongue, — for how many years has this venerable war-god blinked in the noonday sun, and had his massive head washed by the afternoon rains! It is possible that he with the rest will be afforded a shelter when the Museum is ready to receive him. I regard him as the most interesting relic of that past age of idolatry, for there is mention of him among the first objects shown Cortés by Montezuma, when he ascended with him to the temple. Let us see what that companion of Cortés, Bernal Diaz, says about it: "Here were two altars highly adorned, with richly-wrought timbers on the roof, and over the altars gigantic figures representing very fat men. The one on the right was Huitzilopochtli, their war-god, with a great face and terrible eyes. This figure was entirely covered with gold and jewels, and his body bound with golden serpents; in his right hand he held a bow, and in his left a bundle of arrows. The great idol had round his neck figures of human heads and hearts made of pure gold and silver, ornamented with precious stones of a blue color. Before the idol was a pan of incense, with three hearts of human victims, which were then burning, mixed with copal. The whole of that apartment, both walls and floor, was stained with human blood."



TOP OF SACRIFICIAL STONE.

A miscellaneous lot of gods, goddesses, and objects of worship, fare yet worse than the greater deities; for, piled up against

SCULPTURE ON THE SIDE.

the side of a building, they are exposed to the rude assaults of man and beast. A horse was stabled in that quarter of the garden at the time of my visit, close by these valuable antiquities, and, judging by the appearance of some of them, he had given expression to his contempt by kicking off their noses and ears.

Leaving this court, where two palms give a tropic cast to the complexion of the garden, we seek access to the museum. Entrance once gained, through a gallery lined with portraits of the famous viceroys of Mexico, with a full-length of Maximilian on horseback in the background, one soon sees what a valuable collection this is, which has been accumulated during the past ninety years. There is an authentic portrait of Cortés; opposite is his banner,— that silken pennon so often in peril from the savage hordes it was borne amongst. One room is filled with the silver service of Maximilian, some antique armor and relics of the conquerors, while valuable portraits of the viceroys and bishops of Mexico adorn the walls above. Entering the largest room, one sees some fine specimens of that famous picture-writing of the Aztecs, such as they used for conveying to Montezuma the intelligence of the arrival of the white strangers on his coast, in those fateful years of the conquest. There are images here, and gods of every known shape and kind, for the ancient Mexicans rejoiced in a greater variety of gods than any other nation existing at that time. It is related, I remember, that when Cortés proposed to the Tlascalans to abjure their gods, and set up the Virgin Mary instead, they made reply that "they could not do that, but they would give her a fair show with the rest." Whole or none was the policy of Cortés, and he later compelled them to cast down their idols and set up an image of his own choice.

This is a benevolent government, and encourages the learned and scientific men of all countries to come here and study. It opens to them its vast fields of archæological treasures, and says, "Come and investigate"; it points out pyramids and mounds, and says to those wise men from other lands, "Come and dig"; and then it swoops down upon the findings of those wise men and carries them to the Museum.

Yet who can blame it? An antiquarian is not like the wise man, who found a treasure and went straightway and hid it; but he, immediately he discovers anything of value, sets up such a howl of self-glorification that the attention of the whole world is directed thereto. Then, while the excavator is absent, looking for some means of conveying his treasure out of the country, the government steps in and quietly carries it off. Thus Mexico is enriched. The government is apathetic in regard to ruins and antiquities — till somebody finds something, then it is wide awake at once. It does not even gather in the monuments, minor and greater, that lie scattered about the fields.

A case in point occurred in the summer of 1881. The Chicago Times sent out an expedition to Mexico for the purpose of unearthing buried monuments. Captain Evans, who conducted the expedition, was here two months, and during that time was not idle. He found in Tezcoco, the ancient capital of art and civilization before the conquest, a "calendar stone," — or the half of one, — some five or six feet long and three or four wide. This stone had been discovered some six months previously by the poor man who owned the mound, yet no one in the city of Mexico knew of it till announced by Captain Evans. It is a valuable sculpture, but the Mexican government will make no attempt to house it. It will wait till some one less wary than Captain Evans comes along, purchases it of the owner, and tries to carry it away; when it reaches a railroad leading to Mexico, it will be quietly drawn into the Museum, and there remain. There is here a small collection of earthen ware, that reminds us of the exploits of a foreign archæologist in Mexico, — one who came there with a great flourish of trumpets, but who departed without a great deal of pottery.

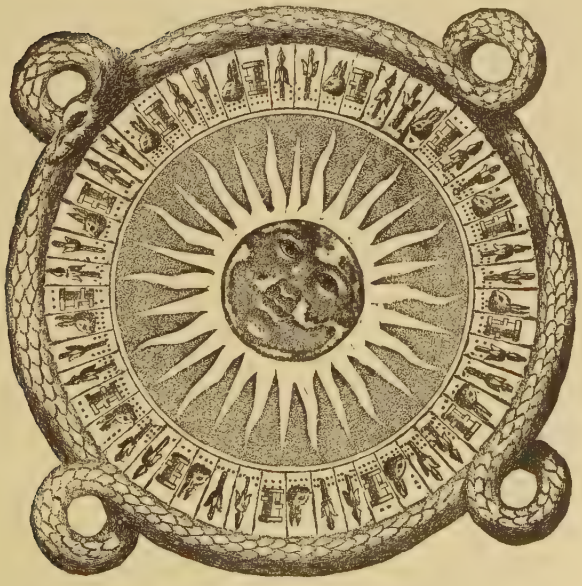
Some of the people of Mexico are afflicted with a complaint known as the *mañana* fever. If you ask them anything, the answer is *mañana*, — to-morrow. They eat, drink, and sleep to-day, but do their work and grant their favors — *mañana*.

And speaking of this *mañana* sickness reminds me that it is contagious. The most notable instance is that of this well-known archæologist. Read his communications, and they are

found breathing the very spirit of "mañanaism." He came to Mexico, stopped at the best hotel, entertaining strangers with descriptions of the excavations — that he was going to make. Now and again he skipped out of town for a few days, dug a hole somewhere, and brought back fragments of pottery that indicated valuable deposits to be found — *mañana*. He was always going to find a buried city — to-morrow; a palace — to-morrow; he will draw you a plan of his work and make all clear — to-morrow; his photographs, the best in the world, are not now to be seen, but — to-morrow; his casts, to enlighten the world, may be seen — *mañana;* and it is not surprising to find that he finally left the country to the tune of *mañana* music.

Lest it should be inferred from the foregoing that the Mexican government does not extend a helping hand to the cause of science, I hasten to add that the contrary is the fact. Although revolutions have shaken this country terribly in the past, fair Science walks serenely on, its eye fixed steadfastly upon the stars. A rapid sketch of the history of this institution, the National Museum, will prove this. It is translated from the annals of the Museum itself.

When that pious furor was over which animated the first Archbishop of Mexico, Zumárraga, and the conquerors and missionaries, who destroyed all the ancient writings and Aztec monuments that fell in their way, — considered by them as invincible obstacles to the abolishment of idolatry amongst the subjugated Indians, — there succeeded a more enlightened epoch, when it was seen what an irreparable loss the history of the New World had met with. Some of the kings of Spain undertook to repair, by every means possible, the evil caused by ignorance and fanaticism, and at different times ordered to be collected all the documents that would serve to illustrate the history of America, and appointed chroniclers of the Indies, who were charged with writing it out. The viceroys of Mexico, following this impulse, commenced to collect and deposit in the archives of the viceroyalty that which they thought of interest. We should not fail to mention the collection of Boturini, called his historical Indian Museum, — a rich collection of many



AZTEC CYCLE AND CALENDAR.

maps, hieroglyphs on skin and cloth of agave, and manuscripts written posterior to the conquest, confiscated by the colonial government. Owing to the negligence of those who had it in charge, this valuable treasure was lost, little by little, and to-day the Museum possesses only a portion of it. It was probably on this account that it was ordered that all the documents relating to Mexican antiquities be delivered into the care of the Royal University. Another of the viceroys, Count Revillagigedo, ordered that the antiquities found at the levelling of the Plaza Mayor, in 1790, should be deposited in the University for special study; with the exception of the "calendar stone," which was asked of him by a commission of the cathedral, and set up in its present position, against the western wall of that edifice. In this manner there was formed in the University a gathering point for the historic documents and archæological monuments of Mexico.

In November, 1822, the national government established in the same edifice a conservatory of antiquities and cabinet of natural history; in 1831, upon motion of Don Lucas Alamán, both establishments were reconstructed under the name of the National Museum. Later, in December, 1865, the Archduke Maximilian removed the Museum to its present quarters in the national palace, formerly occupied by the mint.

At the organization of the national government, in 1867, a sum of five hundred dollars per month was voted for the expenses of this establishment. The Museum comprehends, and is divided into three departments, — Natural History, Archæology, and Bibliography.

A valuable feature of this institution is the publication of its "Annals," containing descriptions of the historic objects in the Museum, and of all antiquities pertaining to Mexico. The first of these *Anales del Museo Nacional de Mexico* appeared in 1877, containing articles by Señores Mendoza, Sanchez, Orozco y Berra, and Bárcena. They have appeared with regularity, and constitute a most valuable addition to the literature of Anahuac. The lithographic plates, executed in Mexico, beautifully colored, are the admiration of all who see them. There

have been in all about twenty parts issued, which are exchanged for the publications of the scientific societies of other countries, and also sold at one dollar each.

But enough of the history of this institution, though it is necessary to a complete understanding of its collections. We have merely glanced over these, since to describe them would demand the space of a volume devoted especially to antiquities. It is only recently that they have been catalogued, and the student made acquainted with the *locale* of some of the rarest historical objects on the American continent.

HUITZILOPOCHTLI, GOD OF WAR.

The most celebrated of these antiquities have been already mentioned, — the sacrificial stone, and the image of the Aztec war god, Huitzilopochtli. As to the latter, let his picture speak for him; it is not known when he was sculptured, but it is known that he was found buried in the great square, in 1790, — that he was again interred, for fear that he might tempt the Indians to their ancient worship, but again exhumed in 1821. Fruitless discussions have been had, as to whether it is Huitzilopochtli, or Teoyaomiqui, goddess of death. It matters not; the

statue was worshipped, rivers of blood have flowed before it, and innocent men and maidens have perished in its presence, for the hearts of human victims were kept smoking on its altar night and day.

The sacrificial stone is inseparably connected with the name of Huitzilopochtli, since it was upon it that the victims gave up their lives. Of this we have data, which enable us to state when it was hewn out from the quarry of Coyoacan and sculptured, with its endless procession of conquering kings. I need not call the reader's attention to what Prescott has written regarding this very stone, to what all the historians of Mexico have said in confirmation of the statement that upon this stone, in a single year, sixty thousand human victims were offered up in sacrifice! It is nine feet in diameter, three feet in height, and carved on top and sides, with a deep bowl in the centre, and a channel leading to the edge. This is suggestive, this gutter for the blood of the victim to flow in, and self-explanatory.

Another great monolith, illustrating the advancement of the Aztecs in the art of sculpture, is the calendar stone,—not in the Museum, but cemented into the western wall of the cathedral. We know, from reading Prescott, Clavigero, Humboldt, and others, that the ancient Aztecs, and before them the Toltecs, were in a measure civilized. It is claimed that they could calculate the recurrence of their cycles, the solstices, etc., and that this "Calendar Stone" was indeed a perpetual calendar. Such has been the result of the interpretations of the hieroglyphs on its face by the learned Gama, Gallatin, and others; but more recent writers advance the opinion that it was solely intended to commemorate the feast-days, and to preserve in the memory of man the years of the cycles that had passed at the time it was engraved.[1] This latter interpretation would seem to be the correct one, but we will not enter into the discussion. It is on record that this stone was also hewn from a block of basalt

[1] See "Calendario Azteco, Ensayo Archæologico, por A. Chavero," Mexico, 1876; and "The Mexican Calendar Stone," by Philipp J. J. Valentini, Proc. Amer. Ant. Society, October, 1878.

quarried in Coyoacan, and was brought to the city with attendant feasts, and songs, and dancing, in the year 1479, during the reign of the great and bloody Axayacatl. Its face is eleven feet eight inches in diameter, and the whole mass is said to weigh twenty-six tons.

As to the picture-writing, some specimens of it are preserved here, though the best examples are to be found scattered abroad in some of the libraries of Europe. Both pictorial and symbolic in its character, the Aztec manuscript was prepared from, and its characters written on, either deer-skin or maguey paper. One is mentioned over sixty feet long, a narrow strip, folded after the manner of a book, with wooden slips at the extremities, which formed the covers when closed.

THE CAVE PERIOD.
(Aztec Picture-Writing.)

Although the best and most valuable Aztec manuscripts, or picture-paintings, were destroyed by Zumárraga, first Bishop of Mexico, some remained, and others — as soon as the Spaniards became sensible of their error — were produced by learned Indians, by order of the Viceroy. We know that the Mexicans were very apt at depicting scenes and representing occurrences, and that the landing of the Spaniards, in 1519, with all its attendant circumstances, was transmitted to Montezuma by his skilful painters before the bustle of that event had subsided.

In the great book by Lord Kingsborough we may find the various "Codices" produced in fac-simile, with all the bright colors of the originals. I have in my possession a lithographed chart in black and white, of some five metres in length, pre-

pared by direction of that indefatigable archæologist, Mr. Squier, so well known as an authority on Central America.[1]

Four "maps," or charts, are given; the first, a history of the sovereign states and the kings of Acolhuacan, is a non-chronological map, belonging to the collection of Boturini. It is on prepared skin, and represents the genealogy of the Chichimeque

NOMADIC PERIOD.
(Aztec Picture-Writing.)

emperors, from Tlotzin to the last king, Don Fernando Ixtlilxochitl, and has a number of paragraphs in Nahuatl, or Mexican. It belonged, according to an inscription on the back, to Don Diego Pimental, descendant of King Nezalhualcoyotl. It gives a summary of the wars, pestilences, etc., which destroyed the Toltecs, and depicts the journeyings of the barbarous Chichimecs who invaded the valley of Anahuac, and finally established themselves at Tezcoco.

[1] I deem it a duty to our museums and antiquarian societies to call attention to this series of Aztec manuscripts in possession of Mr. Frank Squier, of 84 Duane Street, New York. This gentleman has assured me that he would willingly dispose of his duplicate copies, at a very low price, in order that these valuable reproductions might be disseminated.

I produce here fragments of two of the pictures, showing them as living in the caves of Chicomoztoc, their subsequent migration, and their barbarous nomadic life, when they subsisted entirely upon the chase and the wild plants of the field. The second series pictures them as having settled at Tezcoco, and engaged in the pursuits of agriculture, being surrounded by figures of the maguey, cultivated cactus, and other plants. The third gives us a glimpse of their later life, after they had assimilated the remnant of the Toltecs remaining in the valley, and had learned from them the arts for which the latter people had been distinguished, such as the casting of metals, the manufacture of jewelry, copper utensils, etc. The most valuable of the series is called "Map Tepechpan," also one of the Boturini collection, and consists of synchronous annals of the principalities of Tepechpan and Mexico, commencing with the year 1298, and ending at the conquest; subsequently extended by less skilful hands to 1596. Like the two manuscripts before spoken of, these go back to the savage era of the Chichimecs, but give the leading events in the Tepanec and Mexican tribes until the establishment of the Mexican empire, thence relating exclusively to the latter. Wars, earthquakes, volcanic eruptions, inundations, etc.; are all accurately recorded under the date of their occurrence. The coming of Cortés, the death of Montezuma and his nephew, and the accession of Guatemotzin, are all intelligibly set down here in unmistakable characters.

Among the many attractive articles in the Museum is Montezuma's feather-covered shield, below and beyond which are cases of carved stone, in every shape the fertile Indian imagination could suggest; to describe them would require a catalogue.

That rare volcanic glass, obsidian, was early used by the Mexican aborigines in the manufacture of arrow and spear heads, and even mirrors and curious masks are shown here, carved and polished. Vases of clay, black, and painted in many colors, with grotesque figures wrought, we also find, of which the finest, perhaps, is that bearing the image and symbols of the goddess Centeotl, the Mexican Ceres. Of the thousand and one gods possessed by the Aztecs, there were thirteen which held

high rank. The supreme being was Teotl; but their greatest god represented by earthly symbol was Tezcatlipoca, or "the Shining Mirror," while Ometeuctli and Omecihuatl were respectively god and goddess only a little less powerful than the second. The god of storms and master of paradise was one Tlaloc, whose residence on earth was the volcano Popocatapetl.

Of the *tepitoton*, or little gods, the Mexican *penates*, there were a vast number in olden times, for each noble was entitled to six in his house at once, and of these Bishop Zumárraga destroyed, it is said, at least twenty thousand.

VASE IN THE MUSEUM.

So many and so various are the objects collected here, that it must have taken centuries of toil and the slow development of inventive genius to produce them. We can well believe the statement of an English antiquarian collecting in Mexican fields, that he often made trial whether it were possible to stand still in any spot where there was no relic of Old Mexico within sight, and found he could not. Carved objects are numerous, as shown by the masks, the *teponaztli*, or Mexican drum, and the so-called "sacrificial collars." These latter reminded me of some I had seen in Porto Rico, of which the Smithsonian Institution has the only complete series, and which are described and figured in the Reports of the Institution by Professor Mason. There seems to be the same doubt as to the use of these strange stones as hangs over those "collars" from Porto Rico. A teacher in the Jesuit college at San Juan,

in that island, told me that Indian tradition related that these stones, which in Porto Rico are oval, and shaped exactly like horse-collars, were the private property of persons of rank, and were made by them during life to be buried with them at death, being placed over the head and upon the breast of the corpse.

One other object claims my attention here, as I speak of that famed island in the West Indian group, where Columbus first found Indians approaching in their mode of life to civilization, and this is the celebrated *perro mudo*, or dumb dog. There is, or was, a statue of him, and I think he was the animal of all others most worthy this honor, for he could neither bark nor bite. Now this animal, the *alco*, or wild dog, the Spaniards found in Mexico, Peru, and the West India Islands. It was a cherished object of affection with the Indians of Haiti especially, who carried it in their arms wherever they went, and equally esteemed was it by the Aztecs and other Mexicans, though as an article of food. It was called by them *Techichi*, and by the Spaniards *el perro mudo*, or the silent dog. After the conquest, the Spaniards, having neither cattle nor sheep, provided their markets with this animal, and soon, though once numerous, it became extinct; but it is said to exist among the Apaches to-day. The Aztecs held the belief that the Techichi acted as a guide through the dark regions after death. As none of these dogs have been

"SACRIFICIAL COLLAR."

seen for quite three hundred years or more, it is presumed that the entire race is employed in this duty of guiding the spirits of departed Aztecs through the shades of purgatory.

Some visitors to Mexico have complained, through their writings, that there is little to be seen here or elsewhere of that work of the goldsmiths in which the Mexicans excelled. Where, says one, are the calendars of solid gold and silver, as big as great wheels, and covered with hieroglyphics? where the golden birds and beasts and fishes? They have all gone to the melting-pot centuries ago. This is indeed true, for the kings of Spain, though the conquistadores sent them many, many rare and curious works in silver, gold, and gems, were wofully lacking in the antiquarian spirit, and put these priceless treasures to ignoble uses. To-day the native Mexican excels in the production of filigree work in silver, but in little else.

The ancient Aztecs, at the time of their discovery by Europeans, in 1520, were acquainted with many arts that are lost at the present day. Their works in silver and gold were the admiration of all who beheld them; and when brought to the notice of the goldsmiths of Europe, they declared they could not equal them; they cut gems and wrought precious metals in the forms of fishes, birds, and beasts, imitating, in fact, nearly every object in nature. Their numberless idols testify to their skill in carving stone, and their wonderful picture-writings remain to attest their fertile fancy in the invention of symbols for ideas. They possessed in a high degree the true artistic instinct, and nothing will so well confirm the truth of this statement as their remarkable feather pictures. When the Spanish conquerors invaded Mexico, they were struck with the exquisite beauty of the *plumaje*, or feather-work, of the Aztecs. Even the stout old soldiers, who fought through all the battles in which Cortés was engaged, make mention of it as among the beautiful objects that first greeted their eyes in the markets of Mexico.

Though the race that then occupied that country was nearly exterminated, and the skilful artists and artisans dispersed, this art survived even the persecutions of centuries, and is among the few relics preserved of Aztec refinement and civilization. It has

been handed down from father to son, guarded as a secret so closely that but few of the Mexican Indians of the present day are adepts at it. The feather pictures produced by them are as much works of art as the best paintings; and the beautiful feathers of trogon, paroquet, and humming-bird are as delicately laid on and as skilfully blended as the colors from the hand of a master.

Another evidence of refinement of taste in the Indian is to be found in the "rag figures," which have a reputation that is not less than world-wide. The French, in their invasion of Mexico, went into raptures over these marvellous imitations of life scenes that were passing before their eyes every day, and declared they excelled the work of the best Chinese, Genoese, and Japanese workmen. The Aztec is patient; therein lies the secret of his success. Whether he be engaged in blending the metallic scales from the humming-bird's throat in one of those wonderful feather pictures, or whether moulding an image from plastic material, he puts his whole soul into the work, and considers not time nor labor till the thing is accomplished. The vast multitudes that throng the streets and markets of Mexico furnish him with subjects for his patient fingers. Upon a core of carefully-manipulated wax he moulds a skin of thin, specially-prepared cloth, tinted the exact color of the tawny people he purposes to represent. He does not draw upon his imagination for material, but imitates exactly the figures that move through the street before his workshop door.

FIGURE IN WAX.

Thus we have speaking likenesses of every type in Mexico, from the poor Indian, whose nakedness is barely concealed by a tattered shirt or leather breeches, to the gayly decorated *caballero*, mounted upon his silver-bespangled steed. There is the charcoal-seller, with a donkey-load of coal upon his back; it may be man or woman, and if the latter, she will have, in addi-

tion to the burden on her shoulders, a baby suspended in the *rebozo*. Another woman, from the canal and the "floating gardens," has immense bouquets in her hands, and a tray of tropical fruits balanced upon her head. Then there is the vender of crockery, who has on his back a huge crate of all sorts of earthen ware; one group represents him chaffing with a customer, so natural in execution that we are transported at once to the markets of Mexico, and mixing in the busy throng in the Plaza Mayor. A lepero closely follows, a mongrel Mexican, with hand outstretched for alms, and his mouth open, from which we may almost imagine we hear the cry, "*Por dios, señor.*" He has one eye closed as if blind, and his tattered leather breeches barely hang together. He passes, and a white-headed Indian trots in sight, bearing a load of fireworks on his shoulders, and all the paraphernalia for the celebration of Holy Week. A basket-maker comes next, then a man with *tunas*, or prickly-pears, for sale, and all sorts of vegetables and flowers, colored by the artist to exactly imitate the natural article.

While Mexico is fast becoming modernized, it is fortunate, perhaps, that the customs and costumes of the people are thus perpetuated. It will not be many years before the traveller will have to go many a mile, and seek through many a city, for the gorgeous *caballero* who is a common sight in the capital to-day; for the advent of railroads is producing a great change, not only in the face of the country, but in the habits and costumes of the people. They are gradually adopting European styles of dress, and throwing off the garb of their forefathers, which has stamped them as the most original and picturesque people on the face of the earth. The only consolation of the future traveller lies in the fact, that among these people dwell those skilful artists who have reproduced in wax and plaster perfect types of these unique costumes, which are fast becoming obsolete.

The archæological fields of Mexico are exceeding rich, but we cannot linger in them longer; let us hasten to visit another place. It is only a block away from the Museum that we find a public institution which shows yet more forcibly what a truly munificent government has at some time or other ruled

over Mexico. This is the Academy of Fine Arts, the Institute of San Carlos, founded in 1781. "We are astonished," says Humboldt, "at seeing here that the Apollo of Belvedere, the group of Laocoön, and still more colossal statues, have been conveyed through mountain roads at least as narrow as those of St. Gothard; and we are surprised at finding these masterpieces of antiquity collected together under the torrid zone, in a table-land higher than the convent of the great St. Bernard." The casts are scarcely worthy of notice in these later times, but there seems to me much to admire in the five saloons devoted to paintings. The first and second are crowded with the works of the old Mexican painters, and contain some very worthy productions, mostly treating of sacred subjects; several dating from a period nearly three centuries ago, but more of two hundred years back.

The European school is well represented in the third by copies and originals, containing, among others, three by Rubens, one a large Descent from the Cross; a Saint John of God, by Murillo; one Titian; three paintings from the school of Leonardo da Vinci; the Olympic Games, by Charles Vernet; an Episode of the Deluge, by Coglieti; Saint Jerome, by Alonzo Cano; a Saint Sebastian, attributed to Van Dyck; a Virgin by Perugino; and another by Pietro de Cortona; an Odalisque, by Decaen; and several pictures from the Flemish and Dutch schools.

But though an artist might linger longest in these galleries, the fourth and fifth saloons possess greater charms for the lover of Mexico and the student of her progress, for they are devoted to the works of the modern Mexican school. The fourth contains those beautiful paintings of the valley of Mexico, rendered so faithfully, pictured so entrancingly, by the renowned Velasco, and which were exhibited by the government at the Centennial Exposition in the United States. One would not need go to Mexico to see that wonderful valley, if he could obtain those glorious paintings. The ceiling of the fifth and largest is adorned with medallions containing men famous in science and art. In the centre is a grand painting, one I have long desired

to see placed upon canvas by an American descendant of the mother of the New World, — Columbus presenting the fruits of his first voyage to Isabella and Ferdinand. Such a Columbus, and such a queen! And the Indians, timorous, yet with their native dignity clothing them as with a mantle. They bring to mind the picture painted by the poet, where Madoc describes them to his friends in Wales: —

> "What men were they? Of dark brown color, tinged
> With sunny redness; wild of eye; their brows
> So smooth, as never yet anxiety
> Nor busy thought had made a furrow there;
> Beardless, and each to each of lineaments
> So like, they seemed but one great family.
> Their loins were loosely cinctured, all beside
> Bare to the sun and wind; and thus their limbs,
> Unmanacled, displayed the truest forms
> Of strength and beauty."

At the farther end, by itself, as if worthy a special niche in this Mexican temple of fame, — as it is, — one sees the famous work of the young artist, Felix Parra, "Las Casas Protecting the Indians," — Las Casas, good Bishop of Chiapas, whose life was passed fruitlessly fighting the enemies of the Indian. It must have been a genius of more than ordinary grasp (though it requires not much study to find a conception worthy one's highest effort in the history of oppressed Mexico) who could thus have pictured the immortal Bishop and his down-trodden people. It seems, indeed, that the Mexican artist succeeds best when he devotes himself to historic scenes, for which he has a rich field in the conquest of his own country. In the "Massacre in the Temple" we have a confirmation of this. How vividly he has succeeded in portraying the leading figures in that ruthless slaughter, when Alvarado, taking advantage of the absence of Cortés from the city, fell upon the Mexican nobles, their wives and children, and murdered them mercilessly.

"The Capture of Cortés" at Xochimilco is strong and spirited. It brings to mind that dreadful day when the Aztecs wellnigh gained a victory, and Cortés himself, struggling in the grasp of brawny Indians, would have been hurried to the temple of

sacrifice but for the opportune arrival of two of his brave soldiers. It is to be hoped that the sons of Mexico will henceforth break away from blindly copying saints, cherubs, angels, and ecclesiastics, and devote their genius to the study of the thousand stirring episodes in the history of their own country. Already we see that it was not in vain that the king of Spain established here this school of art; although its disciples owe him and his successors allegiance no longer, yet the world at large will receive the benefit.

VEGETABLE VENDER.

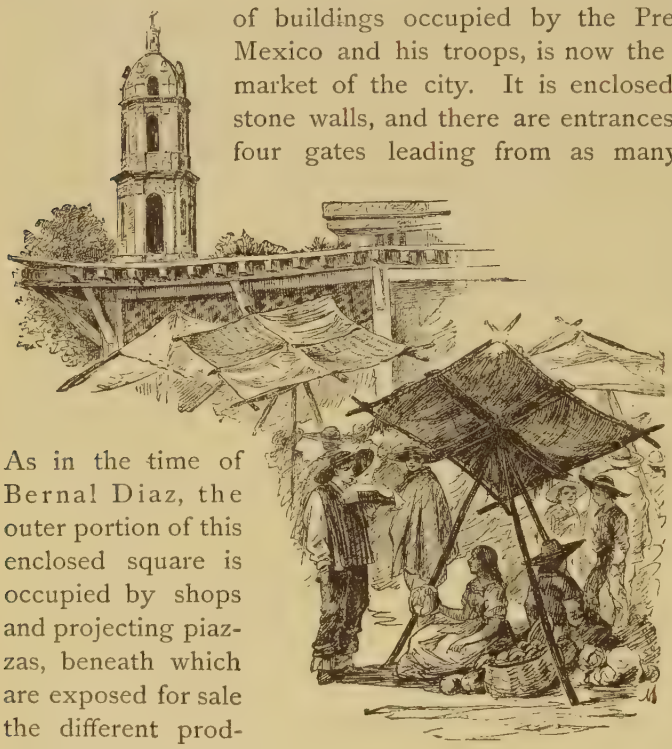
XVII.

THE MARKETS AND FLOATING GARDENS.

FROM the art gallery it is not a long stride to the markets, for they are only around the corner of the Palace, and though one may not find there pictures by old masters, he may obtain plenty of material for new sketches. The companion of Cortés, to whom I have before referred, has a description of the market-place of the capital as it appeared to that chieftain in the year 1519. It affords interesting matter for comparison with the condition of the same place at the present day. "We were astonished at the crowds of people and the regularity which prevailed, as well as at the vast quantities of merchandise which those who attended us were assiduous in pointing out. Each kind had its particular place, which was distinguished by a sign. The articles consisted of gold, silver, jewels, feathers, mantles, chocolate, skins dressed and undressed, sandals, and great numbers of male and female slaves, some of whom were fastened by the neck, in collars, to long poles. The meat market was stocked with fowls, game, and dogs. Vegetables, fruits, articles of food ready dressed, salt, bread, honey, and sweet pastry made in various ways, were also sold here. Other places in the square were appointed to the sale of earthen ware, wooden household furniture such as tables and benches, firewood, paper, sweet canes filled with tobacco mixed with liquidambar, copper axes and working tools, and wooden vessels highly painted. Numbers of women sold fish and little loaves made of a certain mud which they find in the lakes, and which resembles cheese. The makers of stone blades were busily employed shaping them out of the rough

material, and the merchants who dealt in gold had the metal in grains as it came from the mines, in transparent quills, and the gold was valued at so many mantles or so many *xiquipils* of cocoa according to the size of the quills. The entire square was enclosed in piazzas, under which great quantities of grain were stored, and where were also shops for various kinds of goods."

Behind the Palace, south of the long pile of buildings occupied by the President of Mexico and his troops, is now the principal market of the city. It is enclosed by high stone walls, and there are entrances through four gates leading from as many streets.



SCENE IN THE MARKET.

As in the time of Bernal Diaz, the outer portion of this enclosed square is occupied by shops and projecting piazzas, beneath which are exposed for sale the different products and manufactures of Mexico; and the central portion is occupied by natives, squatted beneath the shade of squares of matting stretched over frameworks, and each square supported by a single pole, like a rude umbrella. Slaves, and gold, and precious jewels, and feather-work, are no longer sold in the market; for the articles vended here are confined within the range of those desired for the table and for

household use. But what a variety! It reminds one of what he has noticed in coming up to this high table-land of Mexico from the coast, namely, that this country can boast of almost every climate, every variety of scenery, and the products of every zone, from arctic to torrid.

HIS OWN HANDIWORK.

Several zinc roofs, supported upon stone pillars, give shelter to crowded stalls and cover every kind of merchandise, from a squash-seed to a wooden spoon. The entire enclosure is densely packed with human beings, especially in the morning, when the purchases are mostly made. The men and women that do business here bring their entire families with them, and for the day live here as at home. The markets are divided into the various portions devoted to fruit, vegetables, and articles for household use. Upon mats spread on the stone pavement each vender spreads his or her stock in trade, regardless of the space necessary to the customer in threading his way through this miscellaneous assemblage.

In going through this market one Sunday morning, I jotted down the different varieties of fruits and vegetables, as I saw them, on the margin of a newspaper: and here is the list, transcribed as it ran there. First, after passing the dealers in fried meats, who are constantly dishing out scraps of pork and shreds of beef sizzling in fat to dirty leperos in sombreros and sarapes, stationed at the gate, you encounter the fruit stalls and vegetable stands. There are limes, fragrant as any grown in West Indian gardens, but without their plumpness and flavor; they perfume the air in the immediate vicinity, notwithstanding the sewage odors and the flaunting of vile garments that smell to heaven; close by are pears, — here are two zones brought close together, — but these pears are not equal to those of northern climates; cherries peculiar to the country, shaddocks, mangos, bananas, plantains, oranges, — all from the *tierras calientes*, or hot lands, whence also come the coco-nuts and pine-apples that lie in heaps on the pavement; these last are very dear, approaching prices asked in New York, owing to the great expense of transportation over two hundred miles of railroad; babies — not from the *tierras calientes* — who keep decidedly cool and comfortable, whether lying kicking on their mother's mats or peering from the *rebozos* in which they are confined to their mothers' backs; melons, peaches, wooden bowls, buckets, mats, babies; poultry, fish, babies; lettuce, babies, crockery, tomatoes, peppers, babies, beans, radishes, potatoes, babies without a rag on them; onions, leeks, cabbages, corn, babies with nothing on them but rags; peas, carrots, beets, squashes, artichokes, babies lean and emaciated; birds, children, pumpkin-seeds, babies fat as a post-office contract; Indians, with great coops of chickens on their backs, leading babies by the hand; donkeys, with great panniers of vegetables or charcoal, with babies as crowning curiosities; crockery venders with huge crates of earthen jars and pots. In fact, there are here the products of every zone and clime, and all the productions of mother earth.

It is with pleasure that one turns from this heterogeneous assemblage of the natural and artificial products of Mexico, — from

the place whence his landlady draws the crude material for the nourishment of his inner man, — to a little iron-roofed structure in the Plaza. There are many plazas in Mexico, but only one *Plaza Mayor*, overlooked by the great cathedral, and containing the Zocalo, or promenade of the upper classes. On the western side of the square is the flower market, surrounded by an atmosphere of delightful fragrance.

The love of flowers is a redeeming trait in the character of the Aztec of to-day. It has survived the oppressions of three hundred years, and the exactions of two centuries of Spanish taskmasters. The priests, in their anxiety for converts, allowed the Indians to retain many of their old forms of worship, the least objectionable one of which was the expression of their adoration through the medium of flowers. Barbaric dances, glitter, and display are necessarily a part of their worship, not all of which were derived from their ancient religion. It is said that, long after the overthrow of their gods, the Indians would visit by stealth their prostrate war-god, the terrible Huitzilopochtli, and surround him with garlands of flowers. Enter any church, cathedral, or chapel, and you will find flowers in profusion placed before the images of the Virgin. Not only this, but offerings of the first-fruits of their fields; small clumps of golden wheat and barley, maize and clover. I might add, quoting Prescott, that among the Aztecs "the public taxes were often paid in agricultural produce," — which fact establishes a precedent for the custom prevailing in our own country, of paying one's subscription to a country paper in vegetables instead of cash.

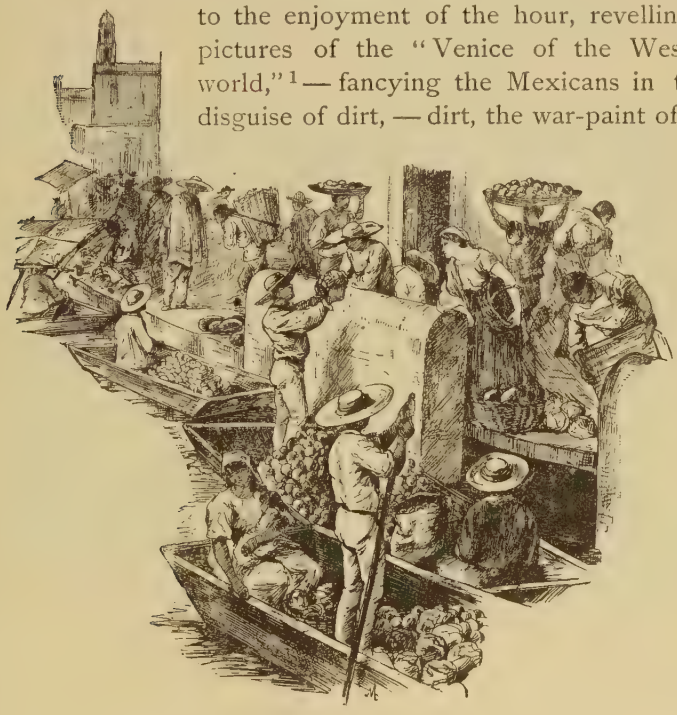
But to return to the flower market. Inside it is full of men and women arranging flowers, great heaps of which cover the floor. Their innate taste for such work is exhibited in their delicacy of arrangement and delightful combinations of color, though the profusion of flowers induces them sometimes to consider quantity rather than quality. The cheapness of these beauties is wonderful: button-hole bouquets of violets or pansies, three cents, or even less; one boy had bunches which he was offering for two cents, — "*Tlaco, señor, tlaco!*" From

curiosity, desiring to ascertain how many flowers composed one of the huge bouquets offered for sale, I bought one. The man asked four *reales* (fifty cents); I gave him two, and gave a boy three cents to carry it to my room. In the privacy of that apartment I dissected that bouquet, as an anatomist would take to pieces the human frame, to find out what composed it. There were thirty red roses, fifty white ones, twenty-eight violets, thirty heliotropes, twenty white rosebuds and thirty pink ones, the whole forming a solid pyramid of flowers, capped by three red roses, one metre twenty centimetres in circumference and twenty centimetres high. There were one hundred and ninety-one flowers, besides the trimming of leaves at the base and an ornamented holder of fancifully cut paper. I leave to my readers to calculate what this would cost in New York, at the time I bought it, on the 8th day of May; but for those hundred and ninety-one flowers I paid only the sum of twenty-five cents!

Flowers bloom here all the year round, one crop following and intermingling with the other; but, as in the North, May and June are the months for roses. From the high plains of Tlascala to the border of the sea may be traced the blossoming of the beautiful that pervades all nature, whether the country be traversed in January or June, in August or December.

One wonders, as he sees the vast floral display, whence all these flowers are obtained, and it is only by seeking the outskirts of the city and the canal of Chalco that he will be gratified. Taking the horse-cars at the Plaza for the *paseo* of La Viga, one reaches a bridge spanning a canal, one of the few water-ways that yet exist in this city. The famous "floating gardens" are always just beyond the eye, floating a little farther on; if one is at the Viga bridge, they are down the canal at Santa Anita; at the latter place, they are at Xochimilco; and there one will hear of them as at Lake Chalco. But there are "floating gardens" near the canal, only they do not float, never did float, and never will float. One arrives at La Viga, and is at once pounced upon by a set of gondoliers almost as ravenous as Hell Gate pilots. They surround one and call his attention to their gondolas, said gondolas being what people of the North

would call mud-scows. Into one of these picturesque arks some of the boatmen succeed in dragging the explorer, and, after waiting half an hour till they have secured a load, and the benches are alive with Indians and fleas, they push off from the bank, worming their way amongst a hundred other mud-scows, and the voyager finds himself afloat upon the waters of the "raging canal." Then he gives himself up to the enjoyment of the hour, revelling in pictures of the "Venice of the Western world," [1] — fancying the Mexicans in their disguise of dirt, — dirt, the war-paint of the



CANAL OF LA VIGA.

true Venetian, — as they swiftly pass in their light canoes (shaped like a bread-trough), — fancying, I say, that they are the noble Aztecs, — as, take them for what their remote maternal ancestors may have been, they certainly are. Thus the gondola glides gently over the waves, the passenger indulges in

[1] Prescott did not originate this phrase; we find it in Clavigero (18th century), and in others: "The situation of this city is much like that of Venice." — Th. Gage, 1626.

day-dreams of Venice, and that sort of thing, until all at once he finds that the canoe has ceased gliding, and he looks out and sees his degenerate gondoliers engaged in a struggle to the death with a mud-bank, and stirring up with their setting-poles — for the true gondolier in the American Venice does not paddle, but poles — such an accumulation of unutterable odors, that his very hair stands on end with surprise. Then the gondola is pushed away from the mud-bank and glides some more; and all the while other boats are passing and repassing, and making it lively and wholesome on that canal.

To a man with strong nerves, if he can survive an hour without drawing a full breath, this boating on the canal is a protracted delight. Aside from the picturesque crowd on the banks, there are boats crowded with Indians indulging in native dances and playing native airs on guitars and rude instruments. A party of them will charter a flat-boat and convert it into a miniature ball-room, while the lookers on along the banks, and even the boatmen, will dance to the music as they run along the boat with their setting-poles.

Down near the end of the *paseo* is a bust of Guatemotzin, the unhappy Emperor of the Aztecs for a brief period, — long enough, however, to witness the destruction of his nation. Repenting that their ancestors should have caused him the trouble they did, that they should have murdered millions of his subjects, that they should have burned his feet to a crisp for nothing, that Cortés should have finally hanged him in the wilds of Yucatan, the descendants of the conquerors have made all amends in their power by putting Guatemotzin on a perpetual bust. He looks out over the eastern plains, toward the rising sun, whence came the Spanish demons that made a hell of his paradise.

Still the gondola glides over the green waters of the canal, between green banks lined with trees, beneath a rude and arched bridge of stone, over more water and amongst swarms of boats, to Santa Anita. Here one disembarks, and passing through a miserable mud village takes another canoe, and is poled among the "floating gardens."

And what are they? Why, they are beds of earth, of greater or less extent, and of varying height, with ditches cut through them; they are gay with flowers, fringed with trees, and as neatly kept as the best kitchen garden in New York. It is true that the gardener floats among them in his canoe while he gathers his vegetables and loads his boat with them, and then carries them to market. But the gardens are solid; they may shake a bit if one jumps on them, because they are boggy, even as a cranberry bed is, or a section of meadow land. But

FROM THE FLOATING GARDENS.

they are gay with flowers, and here it is that many of those exposed in the market are raised.

So many have denied the existence of the ancient *chinampas*, or veritable floating gardens, that I would extend our trip yet farther down the canal, and into the two great fresh-water lakes, Xochimilco — the flowering field — and Chalco, where we shall in very truth encounter them. I have described the chinampas that, though perhaps once vagrant, are now fixed in position and doing duty as kitchen gardens. To one who has read the history of the Aztec irruption into the Mexican

valley, of their wanderings on the lake borders for years, the shifts they were put to in obtaining even the vilest food, as they were driven away from solid and fertile soil by other tribes, it does not seem improbable that their necessities should have driven them to avail themselves of the floating islands of bulrush and reeds set adrift by the storms of the rainy season.

The canal leading from Mexico into the lakes was formerly the great route for all the native trade from Cuernavaca and the south by the way of Chalco, and in the towns of Xochimilco and Mexicalcingo we find now Aztecs of purest blood, speaking their own unadulterated language. The lakes are filled with marsh, and are not open, but traversed by countless water-ways called *acalotes*, or canals. The floating gardens are cut from this vast mat of vegetation, called the *cinta*, which is composed of a multitude of water plants, as the *tula*, or bulrush, liliums, water ranunculuses, polygonums, etc., — over twenty species in number, — and which is said to have no attachment to the bottom of the lake. A body of the cinta, in shape a parallelogram, is cut out by the Indians, and the mud dredged up from the lake bottom poured over it until a deep deposit is formed of the richest soil in the world. This is constantly renewed, as the garden sinks deeper and deeper, until finally perhaps it finds a resting-place, and becomes immovable. But when freshly made it undoubtedly floats, and may even be dragged from its original position, in order that the Indian gardener may have free access to all sides of it in his canoe. In time of storms, the navigation of these lakes is rendered dangerous by detached masses of the cinta, called *bandoleros*, which sometimes float into the canals, cutting off all communication, and imprisoning the boatmen within walls that cannot be scaled or penetrated.

Between the ridges that separate Chalco and Xochimilco from the salt Tezcoco (see Frontispiece) is pointed out to-day that hill celebrated in Aztec history, *La Estrella*, or the Hill of the Star. It was to this point that the Aztecs, at the memorable period known as the termination of their cycle, wended their way in long processions, headed by the priests, and built

on its summit the *new fire*. Here the wretched victim of their superstition was slain, and hence was carried the flame that was to rekindle their extinguished fires, and carry light and joy throughout the kingdoms of Anahuac.

HILL OF LA ESTRELLA.

In the centre of the largest lake, Chalco, lies a small, though interesting island, connected by a causeway with the mainland. This is Tlahuac, visited by Cortés and his soldiers on their way to Mexico in 1519, and described by the historian of the expedition. Beneath the water of the lake, it is affirmed by recent travellers, lie the buildings of the ancient city. Opposite this island is Xico, likewise an ancient Indian town, and at the base of an extinct volcano, the crater of which is planted with corn.

At the extremity of Lake Chalco lies a most attractive town surrounded by a perfect halo of history. Chalco, the former residence of powerful native kings, is built upon a plain, and saw its best days many years ago, if we may judge by the ruinous state of the houses, with battered mud walls and going to decay. A fine old church, containing interesting paintings and statuary, is sharing the general ruin. There is no hotel in the village, and the market-place is almost always desolate. This town once stood on the borders of the great lake of Chalco, the body of fresh water that poured a volume into Lake Tezcoco, through the lake and canal of Xochimilco. But now the lake is miles away, and only reached by canals cut through the sea of marshes. The inhabitants of the place have commerce with Mexico by canoes, and carry there fruits and flowers, though it is a day's journey distant. Fields of pulque, gardens, and trees surround Chalco on three sides, and in front is the marsh.

Long before the arrival of the Spaniards was Chalco celebrated in Mexican history. Her cacique, or lord, was once an independent ruler, like those of Tezcoco and Mexico, but in the early part of the fifteenth century he arrogantly slew two royal princes of Tezcoco, and brought down upon himself and his people the vengeance of the three kings, of Mexico, Tezcoco, and Tlacopan. He richly merited, it seems, the punishment they dealt out to him, as he not only refused his royal victims burial, but caused their bodies to be cured and dried and placed in the principal room of his palace as torch-bearers. The united kings sacked the city, killed the cacique, and the people were added to the subjects of the Mexican crown. Some years later they provoked another invasion, when their city was destroyed and the inhabitants driven to the hills, where they lived for many years in caves; — and perhaps these cave-dwellers of the same sierras may be their descendants. From the summits of the hills about us flashed the fires built by Montezuma to warn them of the war of extermination that he was about to wage upon them. But it was not many years later that these Chalchese had their revenge, when they assisted at

the destruction of the stronghold of their hated enemies; for they were among the first of the Indians to ally themselves with the *conquistadores* after Cortés had established himself in Tezcoco and sat down to the investment of the capital city.

The best fishing on the lakes is near the town of Ayotla (reached over the Morelos Railroad), where the poor people subsist almost entirely upon the products of the water and marshes. It is an inherited taste, this depraved one of the present Aztecs, — a relic of those times when they wandered as vagrants on the lake margins, when they ate frogs, tadpoles, salamanders, the pith of the bulrush, and a thousand things unheard of among us. There is no more peculiar product of the Mexican lakes than that marsh fly called *axayacatl* (*Ahuatlea Mexicana*), which deposits its eggs in incredible quantities upon flags and rushes, and which are eagerly sought out and made into cakes which are sold in the markets. Says that festive monk, Thomas Gage, who visited Mexico in 1625, "The Indians gathered much of this and kept it in Heaps, and made thereof Cakes, *like unto Brickbats*, ... and they did eat this Meal with as good a Stomach as we eat Cheese; yea, and they hold opinion that this Scum or fatness of the water is the cause that such great number of Fowl cometh to the Lake, which in the winter season is infinite."

These cakes "like unto brickbats" are sold in the markets to this day, and the black heaps of the *ahuauhtli*, or "water-wheat," may be frequently seen dotting the mud flats about the lakes, Tezcoco especially. The insects themselves (which are about the size of a house-fly) are pounded into a paste, — as they are collected in myriads, — boiled in corn husks, and thus sold. The eggs, resembling fine fish roe, are compressed into a paste, mixed with eggs of fowls, and form a staple article of food particularly called for during Lent.

The Indians of the Mexican lakes have a systematic method, by which they plant bundles of reeds a few feet apart, with their tops sticking out of the water. The insects deposit their eggs upon these reeds in such quantities that they not only cover them, but depend in clusters. When completely covered,

these bundles are removed from the water, shaken over a sheet, and replaced for a fresh deposit. *Paxi* are the larvæ of the *axayacatl*, yellowish-white worms, which are also eaten, being prepared for the table in various ways. Axayacatl, by the way, signifies "water-face," and is the symbol and name of the sixth king of Mexico, who entered upon his reign about the year 1464, and continued in power thirteen years.

There is one more denizen of these waters which we should not pass by without a reference. Though there are no fish in the great salt lake, Tezcoco, a compensation for their absence is obtained by the presence there of a most remarkable reptile, the *axolotl* (*Siredon lichenoides*). It is a water lizard, a batrachian of the "amblystoma type of salamanders," resembling a fish in shape, but with four legs with webbed feet, and a long, compressed tail. The gills form three feather-like processes on either side the neck, and the tongue is broad and cartilaginous. In color it is of a mixed black and white, and is about ten inches in length.

AXOLOTL.

This most hideous protean is eaten by the Indians of Mexico, as its flesh is white and resembles that of an eel, and is quite savory and wholesome. Its Aztec name, *axolotl*, is pronounced *áh-ho-lotl*, and is to-day called *ajolote*.[1]

It is by a devious path that we have reached the next subject of which I would write; but as it was one of the favorite beverages of the most ancient Aztecs, and valued by them even above the toothsome axolotl, I am constrained in this connection to describe the Mexican national drink, *pulque*, and the maguey of the great plateaux.

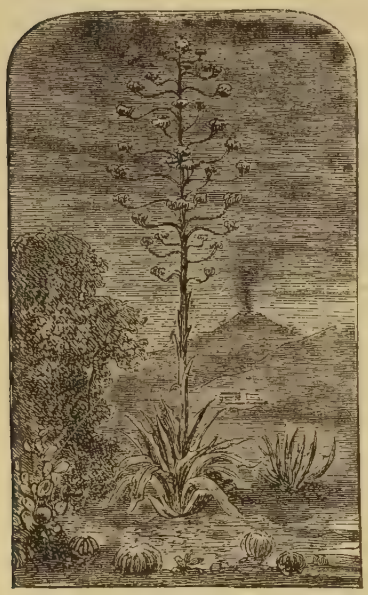
From the earliest times, the inhabitants of earth have pre-

[1] In the "Smithsonian Report" for 1877 is a paper on the "Change of the Mexican Axolotl to an Amblystoma," — a valuable contribution.

pared stimulating and refreshing drinks from various plants, seeds, and fruits. This beverage, pulque, has been so long in use on the Mexican table-land that its origin is involved in the obscurity of fable. It cannot be told when it was first drank, nor whence it derived its present appellation. The Aztecs gave it the name of *neutli* and *octli*, while the plant itself, the maguey, was called *metl*. One interpreter of the Mexican hieroglyphics asserts that the god Izquitecatl first extracted the life-giving juice of the maguey, while the Toltec annals, as usually interpreted, ascribe its discovery to a prince of the royal blood of that line. A pretty fable is related of its discovery in connection with their somewhat mythical chronicles. A noble Toltec, named Papantzin, found out the method of extracting the juice from the maguey, and sent some of it to his sovereign, Tecpancaltzin, as a present, by his daughter, the beautiful Xochitl, the flower of Tollan. Enamored alike of the drink and the maiden, the king, wishing to monopolize both, retained the lovely Xochitl a willing prisoner, and in after years placed their illegitimate son upon the throne. This was the beginning of the troubles of the Toltecs, who had then enjoyed peace for many years, in about the year 1000; it led to their eventual dispersion and extinction, brought about by the hand of woman, and through the means of drink. Through all his disasters, however, the Indian clung to his pulque, each generation adding to the acres of maguey planted by its ancestors, and at the present time its consumption has reached enormous proportions.

The maguey, from which the pulque is produced, though native to Mexico, is found growing in our own country, yet not in any great abundance. But on the great Mexican uplands — those high plains that stretch from mountain to mountain at an elevation of more than seven thousand feet above the sea — is the dwelling-place of the maguey. You see it first in abundance when about one hundred miles from the valley of Mexico, on the plains of Apam. When the Spaniards first came here, in 1519, the native Mexicans had the maguey, of which they made almost as many uses as the South-Sea Islander does of the cocopalm, namely, a hundred.

It is said that there are thirty-three species of this plant growing on these broad plains.[1] The best plants yield liquor for six months after being tapped. From the leaves, root, and juice are obtained a greater variety of products than one would think it possible for one plant to yield. First, paper is made from the pulp of the leaves, and twine and thread from their fibres. The rare and valuable Mexican manuscripts were composed of paper made from the maguey, which resembled more the papyrus than anything else.



THE MAGUEY.

Another use of this plant is in furnishing needles. The leaves are tipped with sharp thorns, and by breaking off the thorn and stripping the fibres attached to it away from the pulp, and then rolling and twisting them together, the native has a serviceable needle ready threaded. The poor people thatch their houses with the leaves, placing one over the other, like shingles; the hollowed leaf also serves as a gutter, or trough, by which the water falling from the eaves is conducted away. The fibrous parts of the maguey supply the country with *pita*, or strong thread, which is made up into ropes, and is in universal use. It is not so pliable as hemp, and

[1] The celebrated Mexican naturalist, Señor Ignacio Blazquez, Professor of Natural History in the State College, Puebla, enumerates (*Revista Cientifica Mexicana*, Tom. I. Num. I., December, 1879) more than the above number. All these varieties have native Indian names in Aztec, and many in Otomi. Although most of them are used merely for hedge plants and surrounding enclosures, yet the majority of them will produce pulque, and the various beverages obtained from the maguey. Twenty-two are enumerated which yield *aguamiel*, or honey-water, and of this number six produce the finest liquor, or *pulque fino*.

is more likely to be affected by the weather, but is strong and durable.

The Greek word *agave* signifies "noble," and the plant well merits the name, both for its majesty and beauty, and for its manifold aids to man. Nothing on these plains is so imposing in appearance as the maguey.

Its leaves are sometimes ten feet in length, a foot in breadth, and eight inches thick. From the centre of these great leaves, after collecting its strength for a number of years, it sends up a giant flower-stalk, twenty or thirty feet high, upon which is clustered a mass of greenish yellow flowers, sometimes more than three thousand in number. After this supreme effort, the exhausted plant dies; it has performed the service to nature for which it was created. From the fact that the aloes in the North takes a great many years to gather strength for sending up this great central shaft, has arisen the story that it blossoms but once in a hundred years, and it has derived the name of the Century Plant.

"In the maguey estates," says an observant writer, "the plants are arranged in lines, with an interval of three yards between them. If the soil be good, they require no attention on the part of the proprietor until the period of flowering arrives, at which time the plant commences to be productive. This period is very uncertain; ten years, however, may be taken as the average, for in a plantation of one thousand aloes it is calculated that one hundred are in flowering every year.

"The Indians know, by infallible signs, almost the very hour at which the stem, or central shoot, destined to produce the flower, is about to appear, and they anticipate it by making an incision and extracting the whole heart, or central portion of the stem, as a surgeon would take an arm out of the socket, leaving nothing but the thick outside rind, thus forming a natural basin or well about two feet in depth and one and a half in diameter. Into this the sap, which nature intended for the support of the gigantic central shoot, continually oozes in such quantities that it is found necessary to remove it twice, and even three times, during the day. In order to facilitate this

operation, the leaves on one side are cut off, so as to admit a free approach. An Indian then inserts a long gourd (called *acojoté*), the thinner end of which is terminated by a horn, while at the opposite extremity a square hole is left, to which he applies his lips, and extracts the sap by suction. This sap, before it ferments, is called *aguamiel* (honey-water), and merits the appellation, as it is extremely sweet, and does not possess that disagreeable smell which is afterwards so offensive. A small portion of this aguamiel is transferred from the plant to a building prepared for the purpose, where it is allowed to ferment for ten or fifteen days, when it becomes what is termed *madre pulque* (the mother of pulque), which is distributed in very small quantities amongst the different skins or troughs intended for the reception of the aguamiel. Upon this it acts as a sort of leaven, fermentation is excited instantly, and in twenty-four hours it becomes pulque, in the very best state for drinking. The quantity drawn off each day is replaced by a fresh supply of aguamiel, so that the process may continue during the whole year without interruption, and is limited only by the extent of the plantation. A good maguey yields from eight to fifteen *cuartillos*, or pints, of aguamiel in a day, the value of which may be taken at about one real, and this supply of sap continues during two, and often three months. The plant, when about to flower, is worth ten dollars to the farmer; although, in the transfer of an estate, the *magueys de corte*, or plants ready to cut, are seldom valued, one with another, at more than five dollars. But in this estimate an allowance is made for the failure of some, which is unavoidable, as the operation of cutting the heart of the plant, if performed either too soon or too late, is equally unsuccessful, and destroys the plant.

"The cultivation of the maguey, where a market is at hand, has many advantages, as it is a plant which, though it succeeds best in a good soil, is not easily affected either by heat or cold, and requires little or no water. It is propagated, too, with great facility, for, although the mother plant withers away as soon as the sap is exhausted, it is replaced by a multitude of suckers from the old root. There is but one drawback on its

culture, and that is the period that must elapse before a *new* plantation can be rendered productive, and the uncertainty with regard to the time of flowering, which varies from eight to eighteen years; but the maguey grounds, when once estab-

EXTRACTING AGUAMIEL.

lished, are of great value, many producing a revenue of $10,000 to $12,000 per annum."

A long train departs every day from the stations on the plains of Apam, loaded exclusively with pulque, from the carriage of which the railroad derives a revenue of above $1,000 a day. From the hacienda the pulque is carried to the cities in barrels and sheep-skins, and there retailed. The shops are gaudily

painted and decorated with flowers, but they can no more hide the nature of their contents than a gin palace or lager-beer saloon. Their vile odor betrays their presence, and about their doors, day and night, may be seen ragged and filthy men and boys, and even women, who drink this beverage until it produces intoxication. Not content with thus perverting the sweet juice, they distil from the mild pulque a strong rum, called *mescal*, which quickly causes inebriety, and is responsible for much of the crime of Mexico.

Pulque tastes something like stale buttermilk, and has an odor at times like that of putrid meat. It is wholesome, and many people drink it for the sake of their health, but the great majority imbibe it solely for the sake of the pulque. The natives ascribe to pulque, says Mr. Ward, as many good qualities as whiskey is said to possess in Scotland. "They call it stomachic, a great promoter of digestion and sleep, and an excellent remedy in many diseases. It requires a knowledge of all these good qualities, however, to reconcile the stranger to that smell of sour milk or slightly tainted meat by which the young pulque-drinker is usually disgusted; but if this can be surmounted, the liquor will be found both refreshing and wholesome, for its intoxicating qualities are very slight; and, as it is always drunk in a state of fermentation, it possesses, even in the hottest weather, an agreeable coolness. It is found, too, where water is not to be obtained, and even the most fastidious, when travelling under a vertical sun, are then forced to admit its merits."

It is only to be met with in perfection near the places where it is made; for as it is conveyed to the great towns in hog-skins or sheep-skins, the disagreeable odor increases, and the freshness of the liquor is lost.

Aguamiel is a limpid liquor, golden in color, sometimes whitish and mucilaginous, according to the species of the maguey, with a bitter-sweet flavor and of an herbaceous odor, which is produced in an excavation made in the root-stalk of the maguey at the point where the floral peduncle begins to unfold; it froths when shaken, gives an abundant precipitate with sub-acetate of lead, and when filtered the resultant liquor

is colorless. An analysis of aguamiel by the celebrated Boussingault gave glucose, sugar, and water as the principal ingredients. Like the vine, the maguey yields the best liquor, independent of the climate, in volcanic or siliceous soil.

Pulque is the product of the fermentation of aguamiel, is an alcoholic, mucilaginous liquid, holding in suspension white corpuscles, which give it its color, and has an odor *sui generis*, a taste peculiarly its own, more or less sugary, depending upon its strength, and contains about six per cent of alcohol.

An exhaustive scientific description of the product of the maguey is given by Senor José C. Segura, in the *Revista Cientifica Mexicana* (Tom. I. Num. 6), to which authority I am indebted for the foregoing facts.

The Mexican's opinion of the national beverage is expressed in the following lines: —

"Sabe que es pulque, —
Licor divino?
Lo beben los angeles
En vez de vino."

Know ye not pulque, —
That liquor divine?
Angels in heaven
Prefer it to wine.

To return to the city and the markets. They are scattered all over the city, preferring to crouch under the shadow of a church or cathedral, and are not confined to the sale of fruits and flowers, but contain everything else known to man. Prominent, on the road to the canal, is the meat market. One knows its vicinage by the troops of dogs that haunt it, and by the greasy and bloody men that stand around its doors. Through the streets he will see passing horses and mules, with peaked frameworks over their backs hung with hooks, upon which are quarters of beef; sometimes these are covered with a cloth, sometimes not. The sight causes a shudder to run through the frame of a stranger, whether the ugly hooks are bare or adorned with their ghastly burdens. Worse than this, brutes of men in leather jackets bear huge hampers of refuse

and entrails, with blood dripping from them, and skulls with horns attached and glaring eyeballs protruding from livid sockets.

One morning, in a walk in the suburbs, I discovered a milk factory, where there was no possible chance for adulteration. In a square containing a fountain was a small herd of cows; about each cow was a crowd of serving-women; and a man presided at the source of supply. A line was fastened to the cow's hind legs, binding her tail to them also, and then passed over her back to her horns, while triced up to her shoulders was a lusty calf. It was a beautiful arrangement; the cow could not kick nor wag her tail, and the calf could not frisk about, nor put his foot in the milk-pail, — for two reasons: first, because he was tied; second, because there was not any pail. The man milked with one hand into a pint cup he held in the other, and which, as fast as it was filled, he emptied into the cups and pitchers of the waiting servants. And they were a clamorous crowd, importuning him to fill their vessels and let them be gone. "Don Felipe, for the love of God give me a medio's worth of milk." "For the sake of the Virgin, a tlaco's worth," etc.

Here, thought I, there is no chance for cheating; here is honesty and pure milk, without water and without chalk, and my heart warmed towards Don Felipe and the promiscuous crowd of maid-servants, squatted around him and his cow in the dirt. These people, thought I, are born of dirty, but honest parents. But my landlady told me that the servants conspire with the man with the cow, and put water in the pitcher, and then divide with the honest expresser of the lacteal fluid, who, by milking fast and furious, creates a froth in the pitcher, not so much desired by her as milk. But did ever landlady and maid-servant exist together without a feud? I choose to believe that there dwells somewhere on this wide earth an honest milkman, and have implicit faith in Don Felipe and his cow.

XVIII.

THE GRAND PASEO, CHAPULTEPEC, EL DESIERTO, AND GUADALUPE.

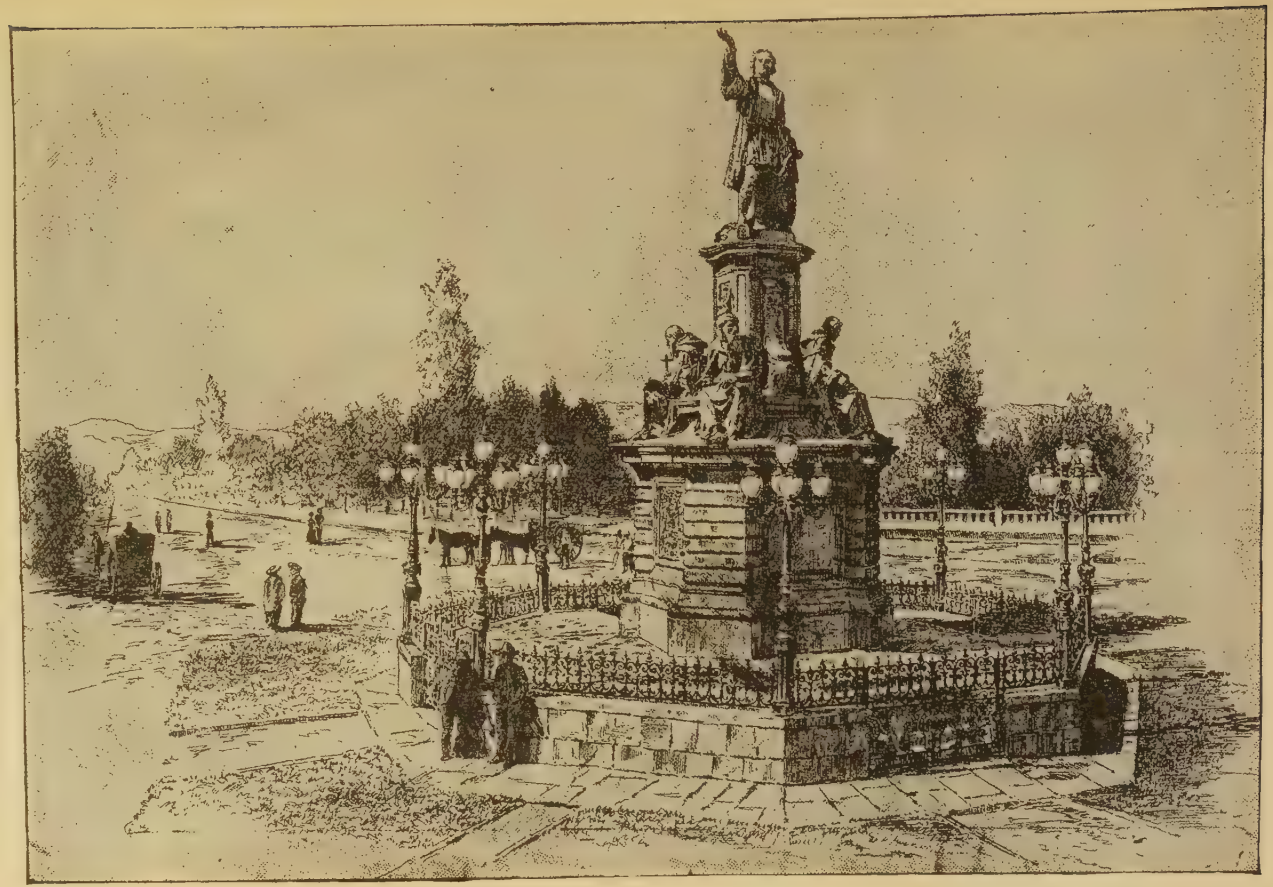
SEVENTEEN hundred yards from the Plaza Mayor, the great square of the city of Mexico, stands the bronze statue of Carlos IV., an equestrian figure, which the great Humboldt declared had but one superior, that of Marcus Aurelius. Behind him is the great Alameda, the beautiful forest garden of the city, with its fountains and flowers; from every direction, various avenues lead in from the country, and are blended in the one artery leading to the city, — to the city's heart. One regal arm is extended westward, pointing to the hill and castle of Chapultepec, toward which from the base of the statue extends the grandest avenue in Mexico, — the Paseo de la Reforma.

When Maximilian was in power here, and, conscious of the ill-chosen site of the city, desired to remove it to a better, he chose the wisest course a wise ruler could have done. Commencing near the Alameda, he caused to be constructed the avenues that radiate in different directions from the statue of Carlos IV. Of these, the Paseo de la Reforma was the principal one, for it was to lead to Chapultepec, his favorite resort, and it was to be the centre of the new city of Mexico, being on the highest land about the present city. The length of this magnificent promenade and drive, from the bronze statue to the castle and park of Chapultepec, is 3,750 yards, which, added to that of the street leading to it from the Plaza Mayor, gives 5,450 yards, with a width, including sidewalks, of 170 feet. In its entire length it contains six circular spaces, 400 feet in diameter, for the erection of monuments to eminent men. The first already holds a beautiful composition in marble and bronze, representing Columbus and

his discoveries, the figures being of heroic size. In the second space the foundation is laid for a statue of Guatemotzin, the last Aztec Emperor, and in the third it is proposed to place that of Cortés, his conqueror and persecutor. There is said to be no statue or enduring effigy of Cortés in the republic, such has been the intense bitterness of the people toward the conquerors of Mexico. That they accept a proposition to erect one to his memory is a proof that they are becoming civilized, and are willing no longer to endure the reproach of Humboldt, that "we nowhere in the Spanish colonies meet with a national monument erected by the public gratitude to the glory of Christopher Columbus and Hernan Cortés." The three remaining circles are not yet spoken for, but they will be occupied by the marbles or bronzes of men famous in Mexican history. Carved seats of stone surround the semicircles about the statues, and long rows of trees, composed of eucalyptus and ash planted alternately, line the sidewalks.

This avenue, then, with its broad macadamized road-bed, its shaded walks, and its beautiful statuary, driven straight across the emerald fields of the valley, is the chosen resort of the wealth and fashion of Mexico. It is the only place, in fact, to which they can repair for a drive since the Avenue de Bucarelli, running almost parallel, is no longer fashionable; fortunately, they need no other. The centre of the drive is for equestrians, while the carriages roll along the sides, up one side and down the other. On Sundays and holidays the "Grand Paseo" is in its glory, though a great crowd frequents it every afternoon of the week; mounted policemen are stationed at every one hundred yards; gayly caparisoned horsemen gallop swiftly past, in broad sombreros, embroidered jackets, leggings decorated with silver braid and buttons, and massive spurs of silver. A more picturesque panorama than this cannot be seen in any other city in America. As the sun goes down behind the hills beyond Chapultepec, this assemblage turns toward the city, and the Paseo is left to the seclusion of the verdant pastures which environ it.

What the citizen of the United States feels most in need of



STATUE OF COLUMBUS.

when he arrives in Mexico is a place to go to, — some house, hotel, section of the city, or quarter where his fellow-countrymen most do congregate. He cannot find it here; he wanders about like a cat on a strange roof, seeking a pleasant, home-like place, but finding it not. There is no hotel here that suits him; not one even on the American plan. The Iturbide, because it is central, grand, and gloomy, has been most patronized; but it does not meet the wants of its guests in a way our great hotels in the States would. There has been a constantly increasing need of a quarter where the stream of Americans could settle and form the nucleus of such winter homes as exist in Florida and the South. This has at last been found. It is on the outskirts of the city, yet within its limits and within gunshot of its busy streets.

The grand drive divides a level tract of land lying between the two great aqueducts that supply the city with water. One of these comes from a point leagues away among the hills, where the old convent of El Desierto is situated; the other conducts the water from the sweet springs of Chapultepec. Both start into view from the base of this rocky hill to the westward, but diverge, one taking its course nearly due east, along that road down which dashed the American soldiers, in '47, as they stormed the San Cosme gate, the other trending more to the south, striking nearer the heart of the city. Between these ancient monuments of the past lies the most beautiful stretch of plain in the Mexican valley, smooth as a floor, covered with short sweet grass, low and flat, yet gradually rising to a level much above the city.

It lies west of the city, the only land available for building sites till the distant hills are reached; its drainage is perfect, through the city and into Lake Tezcoco. The reader of Mexican history will remember that, when Cortés had destroyed the Mexico of the Aztecs, it was proposed to build the new city either at Chapultepec or Tacubaya, at the border of the hills, but that the abundance of building material already at hand, from Indian temples and palaces, induced him to rebuild on the same spot. Ever since, the error has been apparent that the

site chosen was the worst in the valley, principally from the impossibility of effectual drainage.

It is proposed to form here the nucleus for the American colony in Mexico, by building a hotel that shall compare with, or surpass, anything on the continent, and by dividing the land into lots of convenient size for building upon. The hotel is to be placed opposite the third *glorieta*, or the space destined for the statue of Cortés, — is to be built of indestructible material, and plans are invited from American architects. Ten thousand varas were given for the site of the hotel, which is to be 500 feet front by 600 deep; also all the stone, sand, and gravel necessary for its construction. Within half an hour, by steam, are the ancient quarries, whence the stone used in the building of the city was obtained. Here is that peculiar conglomerate called *tepetate*, which can be easily cut, like the shell rock of Florida and Bermuda, and of which half the city is built. This material is placed at the disposal of the builders of the hotel, and can be brought direct from the quarries to the proposed site, by the National road, which bounds the land on one side, and within a thousand yards are the stations of two other great railways, the Central and the Vera Cruz. All the street cars of the city rendezvous in the northeast quarter, while several lines reach the Paseo; none disturb, however, the sanctity of this grand avenue.

Nearly opposite the statue of Colon are extensive baths, with marble basins and an abundant flow of water, that would reflect credit upon any city. There are a score of artesian wells in the tract, from which streams of water gush the year through, rainy and dry season alike. Now the question arises, Why has not this valuable section been sooner taken possession of, and why has it not been built upon? It was, as I have said, part of Maximilian's wise plan to gradually extend the city westward to this higher and more salubrious location, by inducing the wealthy Mexicans to build elegant residences there. Taking up the grand suggestion of the late Emperor, it remains for Americans to realize his dream. The insecurity of the suburbs of the city has been the greatest objection to building there, but

that is now removed. Quick transit is now afforded to all parts of the city; while, keeping pace with the growth of the colony, the immense trunk lines of Mexico will bring passengers from the North, and land them at the very doors of their winter homes. At the entrance to the Paseo, a year ago, a great tower was begun, to be 175 feet in height and 25 feet square at the base, from the summit of which an electric light of 16,000 candle capacity is to dart its rays over the city and its suburbs.

Imagine a winter residence in this charming triangle, with an aqueduct three hundred years old in the back yard, and a view from the front of the loveliest valley and the grandest snow-capped volcanoes on the continent! Try to imagine the perfect climate here, with its delicious nights, and warm, bright days. If the possessors of this royal domain act wisely, it will be possible for many of our people to own here perfect gardens of delight, where they may reside in security and happiness.

Terminating the vista down the avenue, rise the hill and castle of Chapultepec. Historic Chapultepec! From the days when Montezuma wandered beneath its shades and built his palace here, to those of the head of the last dead empire, it has been the chosen resort of successive rulers of Mexico. A glorious grove of giant trees surrounds the hill, — grand old cypresses hung with masses of Spanish moss, like those of the cypress swamps of Florida. Beneath them are traced walks and avenues, which are crowded on Sunday afternoons and on feast days, and are seldom solitary any day in the year. Chapultepec, the Hill of the Grasshopper, has the only grove, and presents the nearest point for recreation, about the city, from which it is distant less than two miles.

Though now used as an astronomical observatory, the castle retains much that Maximilian added for the purpose of making it a royal residence. The corridor was adorned with voluptuous paintings, after the style of a Pompeian villa, but these the prudish Mexicans have draped with a sort of sarape, willing to avail themselves of the genius of the artist, but greatly marring the beauty of his figures. The improvements the Emperor designed have never been finished, but it is hoped that the enlightened

government now in power will carry them out. Whatever may be urged against Maximilian as a usurper, it must be admitted that he has embellished the capital more than any ruler since Cortés. His magnificent service of plate is in the Museum, and the costly furniture is widely scattered, but some tables are shown, some chandeliers, the rooms the royal couple occupied, and the plan, designed by his order, of the imperial park of Chapultepec. From the roof of the castle, as well as from the entire crest of the hill, a wide view is afforded of the beautiful city, enclosed between its amethyst hills. Perhaps there does not exist in the wide world a lovelier vision than that spread before one from the castle of Chapultepec; the historic valley held in the hollow of the cordilleras and guarded by the snow-crested volcanoes far away to the southward, — those

> "Mountains white with winter, looking downward, cold, serene,
> On their feet with spring vines tangled and lapped in softest green."

"What," says the Princess Salm-Salm, "are the Central Park in New York, Regent's Park in London, the Bois de Boulogne in Paris, the Bieberich Park on the Rhine, the Prater in Vienna, — nay, even the pride of Berlin, the Thiergarten, — what are they all in comparison with this venerable and delightful spot?"

The same bright and vivacious writer, who was in at the death of the empire, and performed daring deeds in defence of her hero, the Emperor, relates that the first night Maximilian and Carlotta occupied the castle, they were driven out of their rooms by mosquitoes, and pitched their beds on the open terrace.

Down beneath the hill, to the right, as we face the valley, is that grand memento of days gone by, the cypress of Montezuma, *el arbol de Montezuma*. It is undoubtedly one of those beneath which the Aztec sovereign meditated in the intervals of his sacrifices. Says one female writer, "There has the last of the Aztec emperors wandered with his dark-eyed harem." We suppose she must mean Montezuma, for his successor died so soon after his elevation to the throne that he had little time to wander; and Guatemotzin, stern and watchful chieftain, had no leisure left him by the assaults of the Spaniards. But if we are to believe the chroniclers, Montezuma, though he had an

CHAPULTEPEC.

extensive collection of wives, visited them only by stealth, and never took them walking with him. So we must dismiss this pleasant fiction of the harem; but if the lady insists, then we must imagine that the grave and ever-occupied Montezuma always strutted about with his flock at his heels; and every morning, like chanticleer,

> "His lusty greeting said,
> And forth his speckled harem led."

Rising to a height of one hundred and seventy feet, and with a circumference of forty-six, this towering monarch of Chapultepec has sheltered many a royal head ere it attained its present dimensions; but, with the blessing of God, it will never shelter another. Near this sombre cypress draped in its gray robe of Spanish moss, there gushes from the base of the hill that equally famous spring of cool, clear water known as "Montezuma's Bath." It was the former source of supply for the ancient Aztec city, and was conducted to the capital, as now, over a magnificent aqueduct of nine hundred arches. There is an inscription carved in the stone walls of the basin, to the effect that this fountain was restored by the viceroy of Spain in the year 1571. The southern aqueduct marches straight upon the city and terminates there in a fountain of quaint design, near which is a tablet informing one that there are 904 *arcos* from the bridge of Chapultepec to the fountain; that it is 4,663 varas long, was begun in 1677, and finished in 1779. This fountain is called the *Salto del Agua*, or Waterfall, and the water obtained here is known as *agua delgada*, thin or pure water, to distinguish it from that of the San Cosme aqueduct, which is *agua gorda*, or thick water.[1] Near the spring at Chapultepec is the great rock which is said to have had upon it a carving of Axayacatl and Montezuma, and which was destroyed by Cortés; it is not entirely obliterated, however, as some incised lines yet remain.

1 "Sweet water is brought by a conduit to Mexico from a place called Chapultepec, three miles distant from that city, which springeth out of a little hill, at the foot whereof stood formerly two statues or images, wrought in stone, with their Targets and Launces, the one of Montezuma, the other of Axaiaca, his father. The water is brought from thence to this day in two pipes built upon arches of brick and stone." — Thomas Gage, 1625.

A monument here, a plain shaft, records the brave deeds of the Mexican cadets in their defence of the castle. Nowhere in the vicinity of the capital are grouped so many reminders of Mexico's glorious history; nowhere except in the Museum is there so much to attract one, or so much to absorb his attention after he is there.

Back of the grove is *Molino del Rey*, the King's Mill, where the Americans lost so many men in capturing this key to the defences of the city. The great building is now used as a foundry for ordnance, and stands as on that memorable day in '47 in all its ugliness. On the hill above is a monument to the Mexican soldiers who fell in the action, and from this point the eye takes in at a glance the entire situation, — Molino del Rey and Chapultepec, the fall of which determined that of the city. Down on the plains below are the sites of the battle-fields of Churubusco and Contreras, where obstinate fights occurred.

Dolores, the cemetery of the aristocracy, lies behind these hills, surrounded with fields of pulque plants, and the pleasant resort of Tacubaya, with palatial mansions and beautiful gardens, occupies the slopes where the city of Mexico ought to have been built. A tramway leads direct from the city, past Chapultepec, to Tacubaya, and thence circles round to the lovely hamlet of San Angel, — formerly famous as a gambling centre, and even now worthy an extensive reputation in that respect, — where are annual feasts of flowers, resorted to by the population of Mexico.

Secluded amongst gardens of fruits and flowers, except on feast and gambling days quiet as the grave, no one would suspect that San Angel was the resort of pestiferous robbers and cut-throats. Yet it is, and the *pedregal*, or stony lava plain, bordering the town, which is full of caves and fissures, is the hiding-place of numerous thieves and murderers. The shepherds, half-naked Indians in ragged blankets, who watch over small flocks of goats and sheep, are the guardians of the villains who hide there, and are not over reputable themselves.

"But more Northwestward, three Leagues from Mexico," says good Friar Gage, "is the pleasantest Place of all that are about

THE ALAMEDA.

Mexico, called *La Soledad*, and by others *El Desierto*, the solitary, or desert place and Wilderness. Were all like it, to live in a wilderness would be better than to live in a City." This wilderness, El Desierto, is situated some fifteen miles from the capital, on the road to Toluca. No railroad was finished to it at the time of my visit, and no regular stage line connects it with the city, and so any one then desiring to visit this abandoned convent of the Carmelites had to do as a party of us, tourists and engineers, did, one pleasant day in June. We chartered a diligence capable of holding fifteen persons, and, leaving Mexico at six in the morning, climbed the hills that led away to this conventual paradise. Thirteen engineers, let loose from a week's confinement in the office, it may be needless to remark, disencumber themselves at once of whatever restraint office rules may have laid upon them, and if the people along the route of our road did not know that we were Americans, it was not altogether the fault of the engineers. Besides ourselves there were ten mules and an experienced driver, one who had driven between Mexico and Toluca for many a year.

Leaving the valley, you say good by to all refreshing vegetation except such as snuggles in secluded valleys or in the gardens of the villages. At the hamlet of Santa Fé, those of the party who were outside exclaimed to those who were inside that they ought to be on the roof, for the view was beautiful beyond their power of praise. And this was no exaggeration, as those of us who were so fortunate as to secure an outside seat going down confessed to ourselves on the way back. A picture alone can convey to my reader the exceeding beauty of this fair valley, with its hills, lakes, towns, cities, and mountains seen through the heavenly atmosphere that blesses this country; only Velasco's pictures could do this to perfection, and one must try to fill in the colors in imagination.

The diligence portion of the route was a small matter, for after we had been safely carried to a miserable village called Caujimalpa, the driver assured us that there his obligation ended, and we must procure beasts of some sort for the remaining distance, about two miles. Now at this village there was a

meson, or hostelry, where it was possible, our Jehu said, we might find some horses; but some of the engineers who were sent into the stable-yard to ascertain returned with the discouraging information that there was not one. This set us all down in the mouth, but by diligent search we at last unearthed the keeper of the *meson* and worried him until he admitted that he had one horse; but to every question regarding further supply, he returned the invariable Mexican answer, "*No hay*," — "There are none." Enclosing him in a double ring, the dozen of us elected a spokesman and questioned him regarding the resources of the place.

"Will you give us a horse?"

"*No hay caballo, señor.*"

"We want two *mozos*, also."

"*No hay*" (pronounced *no eye*).

"A *muchacho*, then, to guide us."

"*No hay, señor.*"

"Something to eat?"

"*No hay.*"

"Some pulque to drink?"

"*No hay.*

"A house for shelter?"

"*No hay.*"

"Tell us the road to the convent."

"*No hay.*"

"Confound your picture, can you let us have any mules?"

"*No hay, señor.*"

"A jackass, then, — give us donkeys."

"*Si, señor, hay burros*," — "Yes, sir, I have jackasses."

"Good for the Mexican!" shouted an engineer, "he has *no hay* for horses, but has an eye for jackasses. *Vamonos!*"

"Trot out your donkeys, old man," said our leader; and he trotted them out, forthwith.

Our exultation was of short duration, for there was not a beast in that collection of a score or more that had a whole hide on his back. The poor *burros* had been all the week employed in freighting on the road, and this was their Sunday

rest. Indeed, it seemed inhuman to mount such dwarfed and blistered animals. Long years of servitude had worn the skin from their backbones, the pack-saddles had galled them until there were great spaces of raw and bloody flesh and running sores. They looked at us reproachfully as we got astride the pack-saddles, — for there were no others, — yet they offered no remonstrance in the shape of kicks or expostulatory brays. A silent and a saddened crowd, we wended our way up the hill, along the course of a swift-running stream that supplies the aqueduct that passes Chapultepec and San Cosme.

Soon we entered the wood that renders El Desierto one of the most enchanting resorts within a day's ride of Mexico. Pine, hemlock, cedar, and oak clothed the hillsides and darkened the deep and delightful vales. They are the largest trees found in a body in the valley, always excepting the cypresses of Chapultepec. In fact, there are no others left, except in isolated specimens in the various villages. The air here was cool and sweet, and the wind sighed through the pines with a subdued murmur, as though too heavily laden with sweetness to break into a gale. We found the convent on a central hill, entirely hidden from the world outside, a pile of massive buildings, with domes and turrets, surrounded by their dormitories, and enclosed within a high stone wall. Dilapidation and decay were written all over them. How many years have passed since they were occupied by the pious monks, no one seems to know, but antiquity's veil is over the place, since the oldest of the buildings was raised early in the seventeenth century, — in its first decade. Friar Gage, who was here about 1625, and whom the Abbé Clavigero calls a man of lies (though I believe he verily tells the truth), gives a caustic description of the lives of those holy monks who had mortified themselves by retreating to this wilderness. "It is wonderful to see the strange devices of fountains of water which are about the gardens, but much more strange and wonderful to see the resort of coaches and Gallants, and ladies and gentlemen, from Mexico, thither, to walk and make merry in those desert pleasures, and to see those hypocrites whom they look upon as living Saints,

and so think nothing too good for them to cherish them in their desert conflicts with Satan. None goes to them but carries some sweetmeats, or some other dainty dish to nourish them withal; whose prayers they solicit, leaving them great alms of Money for their Masses, and above all offering to a picture in their Church, called Our Lady of Carmel, treasures of diamonds,

THOSE MONKS OF OLD.

pearls, golden chains and crowns, and gowns of cloth of gold and silver. Before this picture did hang in my time twenty lamps of silver; the best of them being worth a hundred pounds."

This gives us a picture of El Desierto in its flourishing period, and the remains now about us fully sustain the belief that the whole valley was indeed a beautiful garden of fountains and fruits, where the monks secluded themselves in such delightful retreats

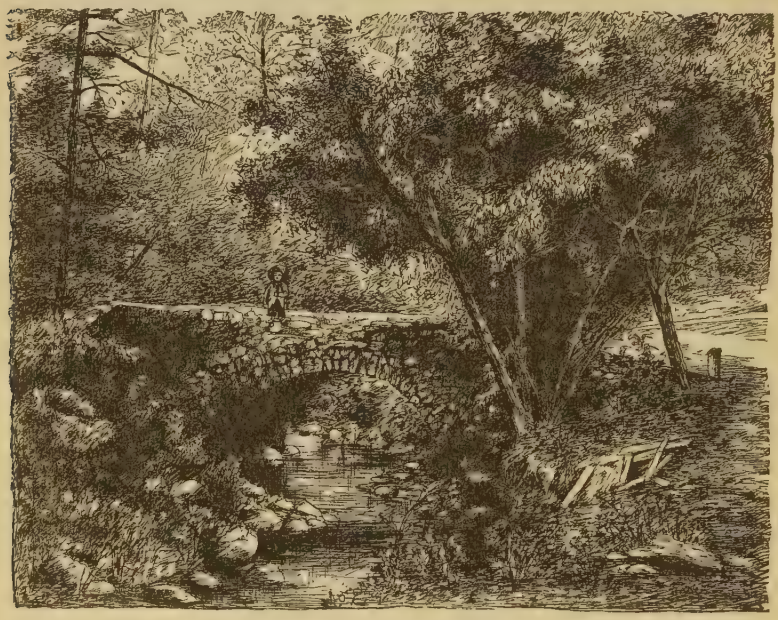
that the fair ladies of Mexico were constrained to seek them out. All, alas! have departed, — fountains, flowers, monks, and stately dames and gallants. The ruins remain, and the forests, for the conservation of which latter, as tending to preserve the supply of water flowing to the city, the government has recently passed necessary laws.

After groping through the subterranean passages, which wound beneath the principal buildings, and may have been used by the accursed Dominicans — who once inhabited here after the departure of the Carmelites — as places of torture or imprisonment for their religious victims, we entered the chapel. How changed in the lapse of two centuries and a half! Where hung that sacred picture of Our Lady of Carmel, and those silver lamps, are now but bare walls, defaced with many an inscription and the smoke of vandal fires. Beneath the central dome, where the light sifts through and enlivens the gloom, is a brick furnace once used for the smelting of glass, fragments of which, and much wood for fuel, lie about on the broken pavement. There are passages in these walls in which one might easily lose himself, wells and cistern that may be the entrances to subterranean labyrinths, and cells and vaults that may once have heard many a groan.

To find a stream in the hills of far-off Mexico that recalled a mountain torrent of New England, spanned by just such a bridge as artists love to draw across our foaming brooks, was something that drew us all into the valley after the fortunate discoverer. One touch of such a bit of nature made us all united at once upon this charming dell as the place to lunch in. The hampers were accordingly opened here, and each member of the party, provided with half a chicken and a bottle of ale, sat down contentedly to the feast. After the repast, the photographer of the party secured — in the conventional language of his profession — the shadow of that bridge, ere the substance faded from our sight, and then we hastened to the convent and our donkeys.

Though with a prospect before them of home and a stable, those donkeys of ours were loath to move in any direction. It

was then that American ingenuity triumphed over asinine perversity, though not even Balaam had more trouble with his *burro* than we did with ours that day. The path down the hills was narrow, and when a rider was settled in his saddle he could not see the way ahead of him if the donkey carried his ears erect, while if he wore them at his side there was hardly room between the opposite banks for the beast to pass. It was only by getting behind a donkey and pushing him that we could get him



BRIDGE AT EL DESIERTO.

into a run, and then, as it was down hill, we would jump on and ride before he had lost his impetus. This scheme was very successful until the beasts saw through it, when they stopped short as soon as we had done pushing, thereby transferring the impetus to ourselves, who were thrown over their heads, despite their ears, and received sundry bruises. But we did not cherish against them any resentful feelings, and delivered them to their owner little the worse for wear; then we rode into the city at

dark, with every member of our party in good condition, — save where he had come in contact with a donkey.

Crossing the valley eastward, we find at about the same distance from the city as Chapultepec, two miles, the church and chapel of Our Lady of Guadalupe. A tramway leads out to it, over a causeway that is said to have existed when Cortés invaded the valley. At the foot of the hill of Tepeyacac is the sumptuous church built in honor of the Virgin of Guadalupe, with a small village clustered about it, and a series of stone steps leading up to the chapel on the hill. Here, in the year 1531, if we may believe Mexican tradition, the most holy Virgin appeared to a poor Indian, Juan Diego by name, as he was on his way to early mass. After commanding him to direct the Bishop of Mexico (who was the noted Zumárraga) to build here a chapel in her honor, she filled his blanket with flowers, and disappeared. The wondering Indian did as directed, but when he cast at the Bishop's feet his burden of flowers, as they fell away from the blanket there was revealed an image of the Virgin herself! Reverently and with joy and wonder, the Bishop took the *tilma*, or blanket, and hung it up in his oratory; and two years later it was hung above the high altar in the church built in commemoration of this event. The church was finished in 1533, and later the chapel, perched on the hill above, was built. These are not the only attractions to the shrine, for a celebrated chalybeate spring gushes forth from the base of the hill, which was caused by the pressure of the Virgin's foot in emphasis of her command to Juan Diego. On the side of the hill, half-way to the chapel, is a monument in stone and mortar to one man's devotion, in the shape of the mast and sails of a ship. Caught at sea in a storm, a sailor vowed he would build a stone ship to the glory of the Virgin, if allowed to escape to land. Once safe ashore, either his funds or his piety failed him, since he got no farther than the foremast. And there it stands to-day, the only stone effigy in existence perhaps, of a ship, or part of one, of so large a size.

In the cemetery, near the chapel, are buried Santa Anna and several other noted Mexican worthies. A fine view of the city

of Mexico is obtained from the hill. In the church at its foot are many objects of curiosity, — the veritable painting of the Virgin on the tilma of the Indian, enshrined in a crystal case with golden border, a silver altar rail, numerous pictures testifying to the efficacy of the waters of the spring in healing the sick, and cords of crutches, which proclaim that numerous cripples have been cured by visiting this most holy shrine.

It will be noticed that the Virgin of Guadalupe is the first American saint in the calendar. Her appearance to Juan Diego was most opportune, since the conversion of multitudes of Indians to the Catholic faith immediately followed, as they transferred their worship of their old images to this new one. It will be remembered that she had a rival in the *Virgen de los Remedios*, which was either brought by Cortés or his soldiers with him to Mexico, or manufactured soon after their arrival. This latter was a small wooden doll, ugly enough to frighten all the rats out of the valley of Mexico, yet dressed in rich petticoats of silk, adorned with pearls of great value. Her church is now partially in ruins, and the blessed relic — this wooden doll, found by a soldier in a maguey plant — was removed to the cathedral years ago. This was a matter of precaution, as she had so many rich jewels about her that it was feared some graceless robber might be tempted to spirit her away from so lonely a place.

XIX.

POPOCATAPETL.

"I could not, ever and anon, forbear
To glance an upward look on two huge peaks,
That from some other vale peered into this."

FOUR snow-covered mountain peaks gleam in the sun in Mexico, making it famous among the countries of the world. There are but two higher on the continent of North America, for the lowest of the four reaches sixteen thousand feet.

First, nearest the Gulf of Mexico, is Orizaba, visible at sea before the coast of Mexico is discovered. This reaches an altitude of seventeen thousand three hundred feet, and is second only to the giant of all, Popocatapetl, whose hoary head is lifted up seventeen thousand eight hundred feet above the sea. Iztaccihuatl and the Volcan de Toluca next appear, each about sixteen thousand feet in height.

Far above the wall of mountains that surrounds the valley of Mexico towers the mighty Popocatapetl, visible from the city of Mexico, and one of the most beautiful objects that grace that land of glorious scenery. It is the first to greet the traveller's eye and enchain his attention as he enters the Mexican valley, the first he later seeks in the morning, the last he loves to look upon at evening time.

Though called an active volcano, it has emitted nothing but sulphur fumes, and perhaps a little smoke, within the memory of man. Yet it may be only resting, for the old historians affirm that it was active in the first years of the conquest, and its very name, Popocatapetl, signifies "the smoking mountain."

Volcanoes take their rest like human beings, and we have only

to turn to the history of Vesuvius to confirm this. The formation of the volcano of Jorullo in Mexico, in 1759, is another example, when from a fertile and highly cultivated plain were thrown up six hills of fire, the central one rising to a height of sixteen hundred feet.

VOLCANO OF JORULLO.

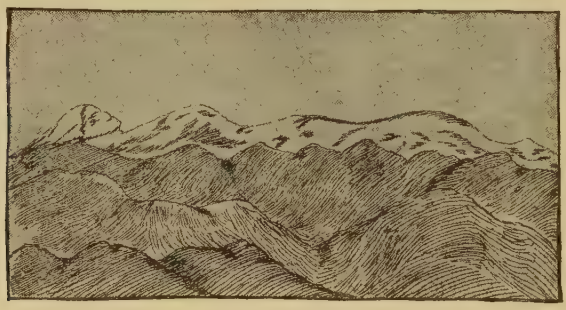
Until within a few years, the ascent of Popocatapetl was rendered more tedious and discouraging than at present by the long horseback ride of sixty miles necessary to be taken from Mexico as a preliminary to the actual climb up the mountain. At the present time this difficulty is obviated by the passing of a line of railroad near the actual base of the volcano, so that one can leave the city in the morning and reach the snow-line before night, ascending the summit and returning the next day. This railroad, the Morelos, leaves the city at the gate of San Lazaro, near where the main sewer flows with sluggish current towards Lake Tezcoco; from the odors of which sewer, and from the congregations of filthy beggars that assemble at the arrival and departure of trains, one will understand why this suburb is named after Lazarus, king of mendicants. You may take a horse-car at the Plaza at seven in the morning, and the

train at seven and a half, and at eight will find yourself rapidly whirling over the salt plains that once formed the bed of the great lake. Passing through several pueblos, we reach Amecameca, the largest town on the line, and the place at which the ascent of the volcano commences, in about two hours. The distance from the gate of San Lazaro is fifty-eight kilometres, and the fare, first-class, one dollar.

In the centre of the town is the Plaza, where a low circular wall of stone encloses a small plat planted with flowers, a round basin filled with water flowing from a fountain in the middle, and a few white stone pillars support a capital and form the entrance, above which, and shading the garden, droop dark green willows. The square surrounding this bit of verdure is large, bounded on its west side, next the railroad, by the Casa Municipal, and on the east by the cathedral, a large and well-preserved building. The streets of the town diverge from this centre, lined with low houses of stone and adobe, — mostly the latter, — roofed with rough shingles spiked on with long wooden pegs. Water from the mountains runs in little streams through the streets, and is diverted by small gutters to the houses for private use. Groups of pines rise above the houses, and all the trees are mainly of the northern zone. East of the town, and in fact all around, stretch immense fields of corn and barley, parted by hedges of maguey, and beyond them the foot-hills commence, with many a fertile tongue of land running up among them, green and golden with grain. Then they rise higher and higher, covered with black forests of pine, until the grand old mountains are fairly reached, which shake off their garments of trees, and tower above them all, brown and barren. Next comes the border of the snow-line, its white robe ragged and patched with brown on its skirts; but finally, triumphing over all below, it drapes the peaked summit in a glistening garment of spotless white.

Facing the east, Iztaccihuatl — *la Mujer Blanca*, "the White Woman" — lies above, and apparently nearer the town, than Popocatapetl. She covers a long portion of the ridge with her white shroud, and is really suggestive, by her shape, of a dead giantess, robed in white for her burial. Far and near, this

volcano is known as the "White Woman," and from the plains of Amecameca and from the city of Mexico the resemblance to a dead woman, lying on her bier and covered with a white sheet, is most suggestive. The neck is a trifle long, and the protuberance of the breasts carried a little too far down, giving an undue prominence to the abdomen; but the dead face is perfect, and the hair streams in silvery locks from the snowy forehead back over the head and down the sides of the bier. Her feet are turned toward her companion giant, grim old Popocatapetl, and between the two lies a long, uneven ridge, mainly beneath the snow-line, brown, and for the most part treeless. Popocatapetl wears a solid crown of glittering snow,



LA MUJER BLANCA.

which appears jagged and sun-bitten at about the same level as La Mujer Blanca, where his diadem loses itself in little streams, that trickle down his giant shoulders.

There is a tradition among the Indians that these two volcanoes were once living beings, in the early years of the world, in the shape of a giant and giantess. The Supreme Deity became offended at some acts of theirs, and changed them into mountains. He struck the giantess dead, and there she lies to this day, stretched silent upon her bier, robed in glistening white. The giant was merely rooted fast to the spot, where he could contemplate his loved companion; and he was wont to express his indignation and grief by fiery floods of lava tears, and by

pouring forth volumes of smoke. In his agony he would shake the whole earth with his tremblings. The affrighted Indians thus recognized him as Tlaloc, the "God of Storms," and Popocatapetl, the "Hill that Smokes."

When it was known among my friends in Mexico that I was going to attempt the ascent of Popocatapetl alone, they said I could not do it; men high in authority warned me of the dangers attending such an effort. Giving heed to the warnings of my friends, I attired myself in my oldest clothes, donned a Mexican sarape and sombrero, girt myself about with a belt stuffed full of cartridges, containing a dirk and a revolver, and then set out for the station. The disguise was so complete that an acquaintance who met me in the Plaza was about to pass without a recognition. I stopped him, and then he apologized.

"O, don't mention it," said I; "but tell me, do you see about me any indications of wealth?"

"No," he replied, "I 'm blessed if I do!"

Then I allowed him to pass on. At the station, the agent made me happy by handing out a third-class ticket at sight. I then knew that I appeared like a common Mexican, and that, unless I opened my mouth, no robber would attempt to murder me with the expectation of getting anything for his pains.

In Mexico, I had been kindly furnished with a letter by General Ochoa, who owns the crater of the volcano and procures sulphur from it, to his mayor-domo, Don Domingo Zela; but Don Domingo was absent when I arrived in Amecameca, and I was thrown upon my own resources. Very fortunately, there met me, as I stepped from the cars, a *volcanero*, or volcano-man, one who had worked in the crater digging sulphur, who offered his services as a guide to the top. His face told me he was honest and tolerably faithful, and we closed a bargain at once, — he to furnish me his own services, three horses, and a *peon*, at five dollars a day. Having concluded these preliminaries, we went in search of the one man of Amecameca who spoke English. After much trouble, we finally drew up at the door of a little house where two pretty girls were sewing; and, upon learning that "papa" was out, but would be back soon, I accepted their invitation to

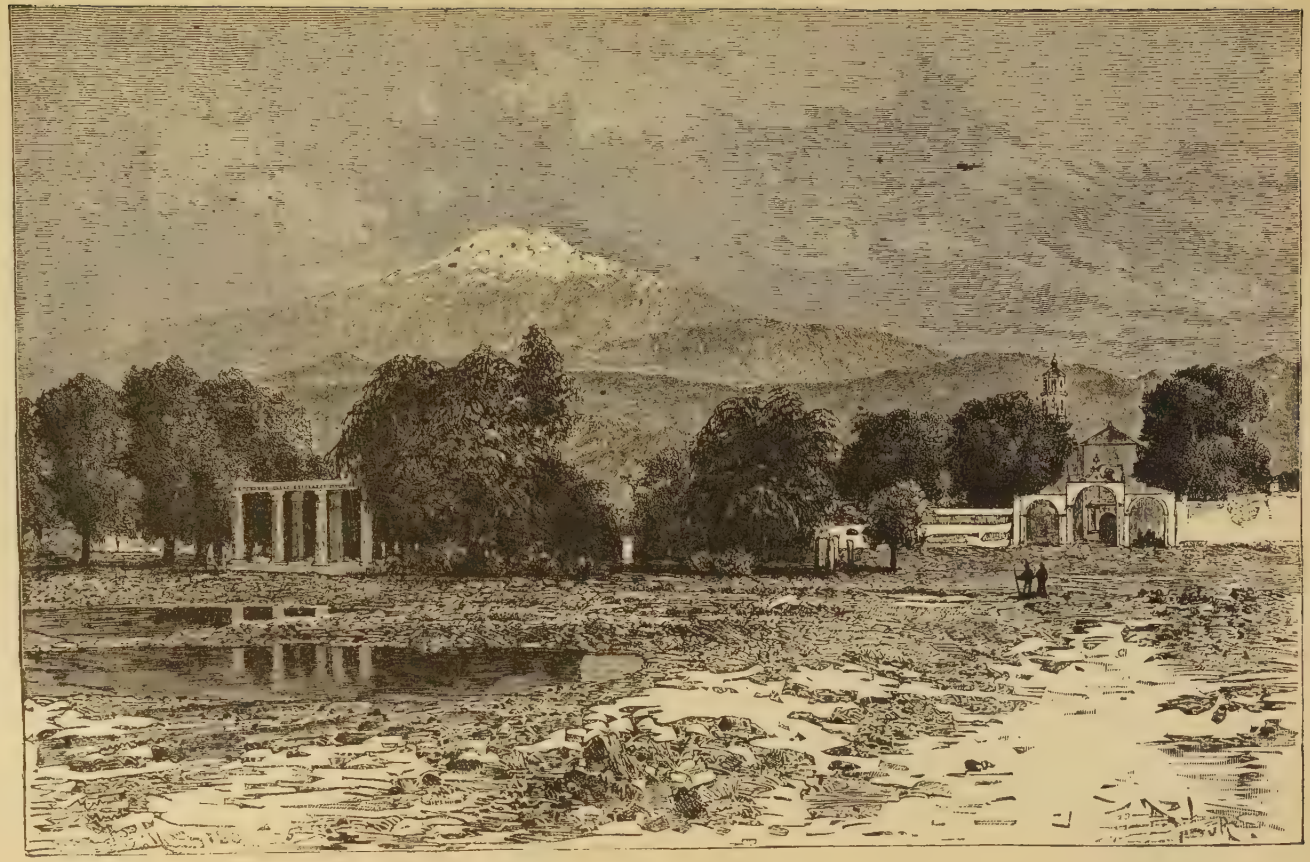
enter. They spoke nothing but Spanish, but their father, who had lived in New Orleans thirty years before, spoke not only his native tongue, but French, English, and Mexican, or Indian. His English was, to be sure, a little the worse for his past thirty years' silence, but he patched it up with a little French, and so we hobbled on. "Im speaks," said he, "ze French besser zan ze England," — and so he did.

Don Felipe was a *medico*, or doctor, in a small way, and was in great demand. He had one sovereign remedy for all complaints, which was that of Doctor Sangrado. He would draw more blood, for less money, than any physician I ever met. An Indian woman came to be bled while we were waiting for the horses, and he drew from her a pint of blood, into a cup clotted with gore, and charged her only a real, or twelve cents.

It was said to be fifteen miles from town to the rancho where we were to pass the night, and we ought to have started at noon, but it was four o'clock when we did start. There is always a vast difference, in Mexico, between the time you should leave, and the time when you do leave, always. Don Felipe insisted on accompanying me to the rancho, leaving his lucrative practice — doctors always have "lucrative practices" — to the care of his daughters, who were left alone. He was a sad-faced, quiet man, with thoughtful eyes and grizzled beard, — a grave and courtly Mexican, whose sense of duty to a chance guest impelled him to climb the mountain with him.

Leaving town, the road winds through great fields planted with corn, and soon runs at the bottom of a deep *barranca*, or ravine, ploughed out by the torrents that sometimes descend from the mountains. Our peon led a horse with a pack-saddle, and Don Felipe, the guide, and myself had each a small, but wiry horse, half hidden beneath a great Mexican saddle with large boot stirrups, on the pommel of which was coiled a lariat.

As we ascended, we met cattle and sheep, tended by many children in ragged garments, and donkeys and horses dragging long sticks of timber on wooden wheels a foot or two in diameter. To pass these we had to ride up the steep banks and wait. As we reached the pine trees — which do not descend in a body



POPOCATAPETL, FROM AMECAMECA.

below a certain altitude — the fields improved; wheat and barley grew high and thick, as far as the eye could reach. Over to the left was a flour-mill all alone. There are no houses between the town and the crater, — "Only," says Don Felipe, solemnly, and crossing himself hastily, — "only the mountains and God!"

The pines grew more abundant, and the air was filled with their resinous odor; jays and chickadees — birds of the temperate zone — flitted from tree to tree, and reminded me of Northern woods. A high, conical hill, rising out of a great field to the right, planted with corn to the top, and with rude ruins on its summit, is called Tetepetongo, the hill of the round stones, and was formerly used as an Indian place of sacrifice, — at least so says tradition. A sister elevation a mile distant, also artificial, or artificially graded, is known as Tusantepec. As we went up among immense trees, old Popo' seemed at one time right ahead, shining golden in the setting sun; again, he was far away, and we seemed travelling from him. We went up, still up, the great trees growing greater, towering far above us, huge hemlocks and pines. A hill covered with coarse grass was on our left, and, as we reached its base, the night crept upon us silently, and wrapped us in its sable folds. We were then ten thousand feet above the sea, enclosed in a cold atmosphere, and chilled by half-congealed rain. Nothing could compare, for dreariness, with the oppressive silence of those high forests; not even a murmur of wind in the tree-tops, no bird of night to startle us with his cries, — nothing but the hoof-beats of our horses, and the crackling of twigs and branches that they stepped upon.

Don Felipe, who had ridden before me silently, wrapped in his cloak, now halted, and demanded abruptly if I was armed.

I said certainly, and asked him if he also had a pistol.

"No," said he; "the people here all know me, and know that I am poor. But you — they think, of course, that you are rich."

"But there are no people living here."

"No; but they are passing all the time, and some may have followed us from town."

"But I have no money, — look at me!"

"A man can't travel without money."

"Humph! yes, a little, but not enough to tempt them to kill me."

"*Señor, they would kill you for a dollar!* Señor, there is a black cross on the road yonder. If it were not so dark, we might see it. There, a friend of mine was killed by the bad men."

"Killed for what?"

"For nothing."

"For money?"

"*Si, señor*, they shot him there."

It was indeed true; for, two days later, coming down the mountain in the freshness of the morning, I saw the veritable cross, opposite a tangled thicket in a lonely pass. It was of rough wood, painted black, and with an inscription on it, desiring all who passed to offer a prayer for the soul of the murdered man. Here, Don Felipe paused a moment, crossed himself, and murmured a supplication.

I was about to tell Don Felipe that I was a dead shot, but I thought that, if I must die that night, I would at least be clear of falsehood for that day. So I jogged along in sullen silence, blaming myself for being led into such a dilemma, and blaming Don Felipe for starting so late, when he knew that we must traverse this dense wood after dark. It was now so dark that my unaccustomed eyes could see nothing but the black trunks of the pines, and I followed blindly my guide and peon, with Don Felipe behind me. Through an opening in the wood, we obtained one last glimpse of Popocatapetl, standing up like a sheeted ghost against the black sky, and then entered a portion of the forest so dense that I could only follow my peon by his white shirt, and my guide by the glinting silver of his sombrero. We rode over fallen trees, striking limbs and projecting branches, stumbling into holes, jumping gulches, climbing hills, descending hollows, — all in pitchy darkness. Suddenly, we were brought to a halt, and the peon darted into the black thicket. I clutched my revolver nervously, and settled myself firmly in the saddle, believing that some foul play was meditated, when

Don Felipe told me that he was searching for the trail. The peon and volcanero held a consultation, and it was agreed to leave all to the pack-horse; and then we went on again, the peon clinging to his horse's tail, — all depending upon the instinct of that poor brute.

The *Cuidado!* — "Beware!" — of the guide became more frequent as the path was obstructed by fallen pines and cut by numerous gulches. A long-drawn howl swept through the black forest at intervals, which Don Felipe said was that of a coyote, or wolf; and more rarely we heard the blood-curdling cry of the puma, or mountain lion. Fortunately for travellers, but unfortunately for naturalists, these animals are exceedingly rare. One would have been enough, however, for us that night; he could have destroyed the entire party without our seeing him at all. We descended a steep ravine and climbed a high hill covered with pines, down which we went, and crossed another ravine; and about this time, when I thought it would be the proper thing to despair, we turned a clump of trees and saw a light. Soon we reached a gate, which a servant opened at our bidding, and Don Domingo, the mayor-domo, warmly welcomed us. We had been five hours in the saddle, and were so cold and stiff we could hardly get our legs together when lifted to the ground. The poor peon, who had walked and run all the way, with only a shirt on, and cotton trousers rolled up to his thighs, had to attend to the horses; though Don Felipe — true *caballero* that he was — allowed no one but himself to care for his.

It was nine o'clock, Don Domingo told us; we had thus passed three hours groping in the darkness of the mountain forests. Made welcome to the roughly-built house, we entered and found a roaring fire leaping up the open throat of a clay chimney. By this cheering blaze we thawed ourselves out, and by the time meat was boiled and coffee ready were in condition to enjoy them. Don Domingo, a perfect gentleman of the type so often met with in Mexico, read my letter of introduction, and told me it was not necessary to present it, as he recognized in me a friend after his own heart. He then embraced me and patted me on the back, and set out his only remaining bottle

of wine. There was but one bed, and in this Don Domingo had been sleeping when we arrived; but he insisted that I should occupy it, and he and Don Felipe spread their sarapes on the floor, and were soon snoring, with their heads on their saddles. The "bed" was three or four boards, raised a foot from the floor and covered with a thin strip of straw matting. Drawing my sarape over my head, and belting my knife and revolver about me, I was soon in the land of dreams.

The rancho of Tlamacas, says Charnay, the archæologist, — who visited it, and found near it some of his most valuable pottery, — is at an elevation of 12,595 feet above the sea. It is in a valley, with high hills on all sides but the north, where the surface slopes toward the valley of Puebla, about nine leagues distant. The soil is volcanic, sand and grit, supporting a growth of coarse grass and great pines hoary with moss and lichens. In about the centre of this secluded valley is the rancho, its visible portion being the house and the subliming works, where the crude sulphur brought down from the crater is purified. This is done in earthen jars, which are broken when the sulphur is sublimed.

Here, then, is a sort of half-way house for the *volcaneros*, and a resting-place for the mules and donkeys that transport the sulphur to the valley below. Sulphur is not the only product of the volcano; for many years the only ice used in Mexico was obtained from the ravines seaming the cone, above the snow-line. Even to this day, the city of Puebla is supplied from the mountain. The Indians ascend far above the rancho, dig out the ice, where it rests congealed the year through, and carry it on their backs to the donkey trails, where it is packed on the backs of these animals to the valleys. From the fact that the ice is imperfectly crystallized and more resembles snow, it is known as *nieve*, snow, and this name is yet applied to the ice-cream made in the cities. In the Plaza of Mexico you will hear, every afternoon, the cries of the boys peddling ice-cream: "*Nieve! tome nieve!*"

The volcano towers directly above the rancho, southeast of it, first a broad strip of pines, then black volcanic sand; then the

snow-covered dome, with the black rock known as Pico del Fraile sticking up on its western ridge.

The peon had been instructed to awaken us at three o'clock in the morning, that we might get well up to the snow-line before the sun rose; but the poor fellow was worn out with cold and fatigue, and when I awoke it was five o'clock, and neither horses nor coffee were ready. The temperature was 48° Fahr. as we started, and the trees sparkling with frost; the sun peered above Malinche, — the solitary mountain that rises from the valley of Puebla, — turning it a fiery red, and bathing the whole Puebla valley in soft rosy mist, then, striking upon the cone of Popocatapetl, made it glisten like a silver dome. It was a glorious spectacle, with the sun's rays rebounding, as it were, from the silver mountain, that towered majestically so far above us into the blue ether. It nerved and braced me for a struggle that I had reason to think would be severe. For two weeks before I started, I had searched Mexico for some companion; but was successful only in developing some of the most disheartening stories of previous experiences, from the few who had ascended the volcano, that ever reached the ears of man. First, I should be robbed in Ameca, then murdered on the road up the mountain, as I passed through the forest; escaping these, I should certainly succumb to the cold at the rancho; or, if not, then I could not miss bursting a blood-vessel as I reached the crater. Of the many who had attempted the ascent few had succeeded, for they either became footsore, or fainted, or bled at the nose, eyes, and ears, or from the lungs, or mangled themselves on the frozen cone. It was a most discouraging prospect; but the trouble was with nearly all who have attempted the ascent, that they were mainly dwellers in cities, who had not often "roughed it," and who looked upon the whole trip as a glorious picnic, and prepared themselves accordingly, with great quantities of eatables and liquor. They, moreover, nearly always carried along their wives and families, and would drag these frail creatures as long as possible, and then have to take them back to the rancho. They told me I must wrap my feet with bundles of rags, to prevent them from sinking in the snow,

or wear spiked sandals; but I knew it must be pretty soft snow that my feet would slump through, and so I merely strapped on my old hunting-shoes, which had assisted me in the climbing of many lesser volcanoes in the West Indies, and buckled on my canvas leggings; this was the only preparation I made for climbing. My peon furnished me with a spiked staff, — not one of those gaudy alpenstocks, such as Cook excursionists use

THE PEAK, FROM THE SNOW-LINE.

in scaling the mighty Alps, and then bring home and stick up in a corner to be worshipped ever after, — but one little bigger than a broomstick, with a rigid iron spike in it.

Leaving the rancho, we immediately entered the pines, and, riding through them for half a mile, struck diagonally down the side of a wide and deep barranca, and then climbed the other side in the same way; here begins the vast stretch of volcanic

sand that laps the base of the cone proper. The horses sank fetlock deep, the grade was tremendous, and their labored breathing, as they stopped every rod or two to get wind, was extremely painful to witness. Owing to the rarefacation of the air, and the great labor of wading through the heavy sand, it really seemed as though the blood would gush through their red, distended nostrils. Compelled to adopt a course of short zigzags, my mozos ranged far ahead of me, and reached the rendezvous long in advance of the horses. After about two hours of this work, during which the agony of the horses seemed so great that I was only restrained from dismounting by the knowledge that I needed all my strength for the final climb, we reached a ridge of rocks. It was the first of a series that cropped up through the black, shifting sand, and ran down toward Puebla in many a fantastic shape, evidently formed by fire. On the upper rock is a cross, indicating the death of a man, — this time not on the spot, but in the crater. At this spot, La Cruz, we halted the horses, and I gladly dismounted.

The limit of vegetation[1] had been passed at a little distance above the barranca, the pines (the *Pinus Montezumæ*) ending there in a body, as if refusing to advance even a single straggling sentinel farther; and then came clumps of coarse grass, dwindling finally to little specks, and at last all that remained were the hardly visible blotches of moss or sphagnum; above, all was sand, to the skirts of the everlasting snow.

Here Don Felipe left me, and turned back with the horses. He had thus far come with me voluntarily and without recompense, as my *compañero*, but his obligation — like that of the bride who ascended Mont Blanc with her husband and wilted

[1] "At the height of 14,500 feet all the Phanerogamia have vanished, and the vegetation consists merely of mosses and lichens, which cover the separate rocks as high as 14,700 feet. Botanists acquainted with the Scandinavian Alps agree, that in the vicinity of the snow limit of the extreme North the Cryptogamia are more abundantly represented, both as to number and variety, than under similar circumstances in the tropical zone. . . . . From the threshold of rigid death, as from the North Cape or the glaciers of Iceland, our eyes pass from the Arctic zone and the pine groves of the North to the gardens of the Hesperides with their golden fruit, and thence to the glowing zone where the palms and the arborescent grasses are developed." — Sartorius.

half-way up — did not extend beyond the snow-line. Dear Don Felipe! he embraced me as though for the last time, and his serious face assumed an even graver expression as he warned me to return immediately that I felt symptoms of giddiness. Then he turned and plodded down the mountain, as we prepared to ascend.

A sublime spectacle was opened to me as I stood by the lonely black cross, wedged into the fire-scathed rock, at this elevation of 15,000 feet. The eye ranged over a vast valley, down the ridges, above the black belt of volcanic sand, across the pines, to La Mujer Blanca, the dead White Woman, now with a wreath of cloud above her, and her snowy breasts upturned, bared to the pitiless sky. A broad table-land lies between the two volcanoes, which appears, at a lower elevation, like a narrow gap. Through this gap, which I passed the night before, runs the trail that Cortés took, when he first approached the valley of Mexico. From its western slope, the future conquerors first saw the wonderful vision that seemed to them like a picture of enchanted land. "Eight leagues from the city of Cholula," wrote Cortés, in his letters to his sovereign, "are two very lofty and remarkable mountains; in the latter part of August their summits are covered with snow; and from the highest, by night as well as by day, a volume of smoke arises, which ascends above the mountain to the clouds, as straight as an arrow. As I have desired to render your Highness a very minute account of everything in this part of the world, I wished to ascertain the cause of this phenomenon, as it appeared to me, and I despatched ten of my companions, such as I thought suitable for this purpose, with several natives of the country for guides, charging them to use every endeavor to ascend the mountain and find out the cause of that smoke. They went, and struggled with all their might to reach the summit, but were unable, on account of the great quantity of snow that lay on the mountain and the whirlwinds of ashes that swept over it, and also because they found the cold insupportable. But they reached very near the summit, and while they were there the smoke began to issue forth with so much force and noise that it seemed as if the whole sierra was crum-

bling to the ground; so they descended, and brought with them a considerable quantity of snow and icicles, that we might see them, as it was something quite new in this region. . . . . While on their way to the mountain, the party discovered a road, and inquired of their Indian companions where it led, who told them to Culua (Mexico). They followed this road until they began to ascend the mountain, between which and the other elevation

THE VOLCANOES, FROM CHAPULTEPEC.

it passed; and from it they discovered the plains of Culua, and the great city of Temixtitan, and the lakes of that great province." [1]

The same scene of beauty that greeted the delighted eyes of the Spaniards, three hundred and sixty years ago, was unfolded to me as I stood at the foot of La Cruz, eight thousand feet above the valley of Mexico, where the glimmering towers of the city could be seen, though fifty miles away. The

1 "The Spaniards followed nearly the same track which the courier of Mexico takes on his way to Puebla, by Mecameca, which is traced on the map of the valley of Tenochtitlan." — Humboldt.

valley of Puebla, away to the north, lay half veiled in vapor, revealing little lakes, a village here and there, white church towers, and the varied hues of hill and vale, of wooded mountain and populous plain. Rising high above it was the extinct volcano, Malinche, or Malintzin, named by the Indians in honor of Cortés, and far away to the east the peak of Orizaba, a hundred and fifty miles distant, its snowy cone glistening like a diamond above the enveloping clouds. A glorious vision, — one that I could have looked upon for hours; but the gathering clouds of mist, rolling up from the valleys, warned me that it was dangerous to linger longer.

A wide belt of deep sand lay between us and the solid snow, flecked here and there with little drifts and straggling remnants of former storms. Through this we slowly and painfully waded, falling back at least one step in three, and breathing the first sigh of relief when finally among the snow-fields. Simultaneously with our reaching the snow, the threatening clouds gathered about us, and we were enveloped in as dense a fog as any I have ever seen on the Atlantic coast.

The real dangers to be encountered in the ascent of Popocatapetl, as enumerated by a traveller who preceded me by eighteen years, are avalanches, shifting sands, sand slides, lightning playing over the metallic sands, whirlwinds of sand, unseen chasms, and rupture of the lungs. We had passed the sands, and were now in danger only from the two last.

We were now fairly above the cloud strata and walking onward as in a dream, conscious of direction only by the steepness of the incline before us. The only guide-book that describes the ascent of the volcano warns travellers to "provide themselves with overcoats, veils, and alpenstocks, which they dive into the ashes and volcanic sand." It is not absolutely necessary to provide yourself with veils and overcoats "to dive into the volcanic sand," but you must have blue goggles, to prevent the effects of the strong reflection of the sun's rays from this glaring surface of snow. A person with a delicate complexion might also feel the need of a green veil, and the mozo should carry for him an overcoat or extra wraps.

In the language of a correspondent of a New York paper, writing from Mexico at the time of my ascent, I went up "alone, with three Indian guides." Well, so I did; at least, there was no *gente de razon*, or white man, along with me. There was my peon, in cotton shirt and pants, with only a remnant of a sarape over his shoulders, and only his sandals strapped to his bare feet. He carried my tourograph, or camera, and a canteen of "nourishment," besides the provisions. Then, there was my "guide," now degenerated into a mere *compañero*, or companion, who knew nothing, as I later ascertained, of the mountain; and the real guide, an old man picked up at the rancho. He also wore cotton shirt and pants, and a broad sombrero, but had his feet swathed in strips of blanket till they looked as though he had an infliction of elephantiasis.

The peon and I soon left the others behind, and plodded on, one step after another, for hours. The snow was just right for climbing over; as there had been no recent fall, it had been softened and compacted, giving quite a good foothold. It had been gnawed by the sun till it lay in great cakes, tilted up edgewise, forming a labyrinth of passages, through which we slowly picked our way.

Such terrible stories had been told me of the sufferings endured by mountain climbers up this cone of snow, that I had prepared myself to meet and overcome obstacles requiring almost superhuman strength and endurance. I had resolved to go on, step by step, taking my time, shedding my last drop of blood, if necessary; but to reach the summit by all means. So I took it serenely, following close after my peon, treading where he trod, and letting him take off the wire edge of the trail. He seemed to like that. It showed I had confidence in him, and so I had,— confidence that if he fell into a hole and disappeared, I should not follow suit. Half-way up, perhaps, my "guides" cried out, "Señor, we can't go any farther, we are lost." We were surrounded by mist that obscured everything more than ten feet away from us; but I could not see how we could get lost, when, if we went up far enough, we should reach the crater brim; or, if low enough, we

should come out on the belt of ashes; and so I told them. My peon also was of my opinion; and, as we combined had the food, drink, instruments, and pistols, I did not care whether the others came on or not. In Mexico, I had procured a double-handful of the famous coca leaves, — the stay and stimulant of the Indians of the Peruvian Andes, — and to these may be attributed, possibly, the fact that I made the ascent without fatigue. Whatever the reason, I went on, calmly chewing my cud of coca leaves; up, up, surmounting one snowy barrier after another, for four hours or more, until my faithful servant turned and said, "*Señor, aqui está el crater!*" — "Here is the crater!"

Reaching the place where he stood, I suddenly came upon a black and yawning gulf, which even the dense mist could not conceal. Here, for the first time, there darted through my temples a severe pain, which remained for hours, even till I had descended to the rancho. Overcome by conflicting emotions, and needing no longer any further stimulus, I sank upon the crater's brim, breathless and panting from excitement. Then I rose exultingly, and discharged the six chambers of my revolver into the air, creating such a concussion in the crater that great stones rattled down its perpendicular sides, and the reverberation nearly deafened us. From "crag to crag" leaped the volumes of sound, like peals of thunder, and finally died away in receding murmurs, as though retreating farther and farther into the entrails of old Tlaloc, the god of storms, whose brow I now stood upon, at a height of nearly eighteen thousand feet above the sea.

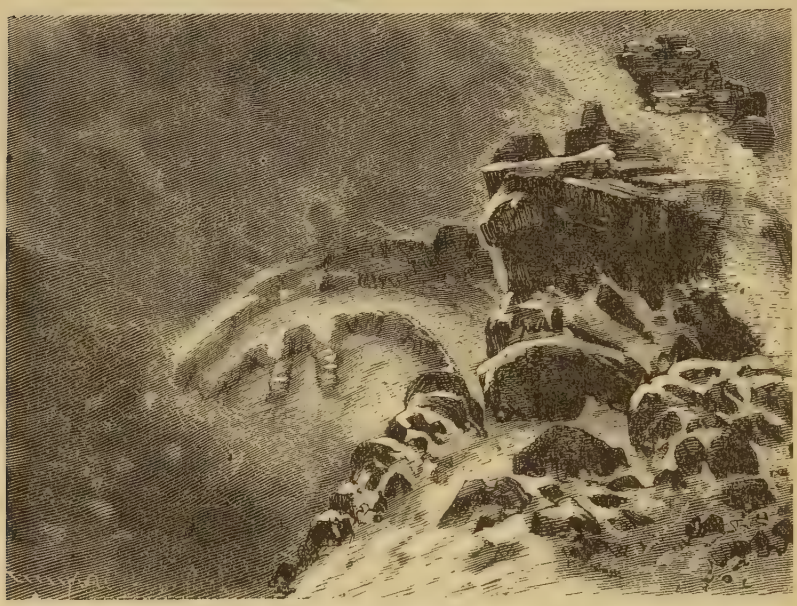
The lip of the crater is a narrow rim of sand, lying above the black abyss and at the edge of the sea of snow, like the coral ledge composing an atoll of the southern seas. Its highest point is at the west, its lowest at the east, and the crater has somewhat the shape of an ellipse, four or five thousand feet in its longer diameter and over one thousand feet deep. The snow stopped abruptly at this wreath of sand, rising to a height of from six to eight feet, and curling over it, but prevented from advancing farther by the heat from the crater. "Thus far and no farther!"

the heated breath of Tlaloc's vitals belched in the face of the boreal visitor, which rested like a cloak upon his shoulders. When an opening in the clouds occurred, I descended over the brim about one hundred feet, clinging to the projections of porphyritic rock to a rocky platform, whence the laborers in the volcano were lowered to the bottom of the crater. They had not been at work for a month, and the *malacate*, or hoisting-winch, was dismantled; but, by holding by the great beams, I could peer over the brink into the horrible pit below. Directly beneath me ascended a dense sulphur cloud, from which, and from various other vents scattered over the surface, arose the strong fumes that suggested to us the infernal regions. It is from these vents, called *respiradores*, that the sulphur is obtained, being sublimed upon the sides of the crater. About twenty years ago, the present owner of the volcano commenced to work this dangerous sulphur mine, removing the sulphur at a great profit. At present the only supply is that from the condensed fumes, as it is deposited; but originally there was the accumulation of centuries.

Here is the testimony of Cortés himself as to the finding of it: "As for sulphur, it has been taken out by a Spaniard, who descended seventy or eighty fathoms, by means of a rope attached to his body below his arms; from which source we have so far been enabled to obtain sufficient supplies, although it is attended with danger."

In 1625, an English traveller visited Mexico, and thus describes the volcano: "Popocatapec is one of the chief of these fiery Mountains, which signifieth a hill of smoak, for many times it casteth out smoak and fire. When Cortés passed that way, he sent ten Spaniards to view it, with many Indians to carry their victuals and guide them; but two of them went up to the top, and at length came under a great smoak, very thick; and standing there awhile the darkness vanished away, and then appeared the *Vulcan* and concavity, out of which the air came rebounding with a very great noise. The smoak and heat were so great that they could not abide it and were constrained to return. But they had not gone far when the Vulcan began to flash out

flames of fire, ashes, and embers; yea, and at the last stones of burning fire; and if they had not chanced to find a rock under which they had shadowed themselves, undoubtedly they had there been burned. Before the coming of Cortés, for ten years' space, it had left off expelling vapour or smoak; but in the year 1540 it began again to burn, and with the horrible noise thereof the people that dwelt four leagues from it were terrified."



AT THE SUMMIT.

We are told that Humboldt was the first who reached the crater brim in modern times; and the first really scientific examination of it was in 1856, by a Mexican engineer, General Gaspar Sanchez Ochoa, who made the height, by barometer, to be 19,443 feet above sea level.

The entire depth, from the *malacate* to the *plaza horizontal*, or floor of the crater, is about three hundred metres, the floor itself being about two hundred metres in circumference, and the length of the acclivity some six hundred; the interior temper-

ature changes according to the proximity of the *respiradores*, or sulphur vents. There are more than sixty *sulfataras*, one of which is over fifty feet in circumference, and from all parts columns of smoke more or less dense, and deadly fumes, are constantly issuing forth.

Complete daylight reigns at the bottom of the crater, but all this changes very quickly when a storm, or *borrasca*, is coming on; then the air becomes completely darkened, and the snow drifts thickly down, only to melt as soon as it settles, the *respiradores* are roaring continually, the heat increases to such an extent as to become insupportable, while from the centres of the *sulfataras* from time to time dart out flames and burning matters. It will thus be seen that the crater is not a pleasant place to work in, and that the laborers there run great risks. It is quite difficult for General Ochoa (to whom I am indebted for the above description of the abyss) to obtain laborers, as one would naturally suppose; though there is no especial mortality among the men working at this altitude, who labor in gangs, alternate weeks, camping in the crater beneath rough sheds. A sudden storm or earthquake sometimes makes it uncomfortable for them; but these *volcaneros* are a hardy class of Indians, and, if well supplied with *mescal* and *aguardiente*, endure their hardships wonderfully well.

Ascending again to the brim, I pitched my camera, and awaited an opportunity to get a view of the crater; but just then a few snowflakes drifted by, and the next minute a violent gust compelled us to seek shelter beneath the ledge of snow. The storm raged furiously for over an hour, pelting us unmercifully, till we were half buried in the drifts, and threatening to materially interfere with my photographic exposures; but taking advantage of a lull in the gale I crept with my guide to what he called the highest point, — *el pico*, — though without getting a view of the lower regions. We were indeed above the clouds, and on the very battle-field of the aerial elements. From the dismal depths of the crater the hissing of escaping steam and booming detonations told of the activity of the internal forces, while the crashing of falling stones awoke the echoes of this great basin in deafening reverberations.

At last, after more than three hours on the mountain-top, vainly looking for a clear view over the expanse below, came the time for leaving, and I prepared to descend, first however taking stock of the provisions and drinking my canteen of cold tea. Wishing to make the ascent as much a test of endurance as possible, — as it is certainly a test of lung and vital power, — I had not drunk or eaten anything since my biscuit and coffee of the morning, having accomplished the ascent in six hours, with nothing in my mouth but the coca.

If the ascent was slow and tedious, going down was exactly the reverse. Down the cone, the laborers of the last month had dug a long, straight trench, leading from the crater brim to the fields of volcanic sand, over which they used to slide the sulphur. Had they been working then I should have borrowed a *petate*, or mat of bulrush, and have slid down on that, as they were wont to do; but as they were not, I stood up on my broad-soled shoes, and, guiding my course with my alpenstock, flew downward with the speed of the wind.

In less than ten minutes I had left the region of storms, and had emerged into one of calm, the snow-cakes spinning past me in a way decidedly lively; in less than two more I had come near sliding into that zone of tropic heat we sometimes read about, for my toe caught an ice-chunk and sent me burrowing into a crevice, looking for the centre of the volcano. Fortunately, there was not room enough both for me and my clumsy shoes; so my peon pulled me out in time to prevent suffocation, and set me down in the snow to recover. Then, with long leaps, we sped down the cone and out upon the sand, and finally reached La Cruz, whence our descent to the rancho was uneventful.

Popocatapetl stands high among the volcanoes, and holds a respectable position among mountains in general. "There are no Alps," quaintly observes Friar Gage, "like unto it for Height, cold, and constant Snow that lieth upon it."

No two authorities perfectly agree as to its altitude; according to Humboldt (trigonometrical measurement) it is 17,716 feet; the French *savans* made it 18,362, and the Mexican geographer, Garcia Cubas, 5,400 metres; the limit of pines is placed at 12,544 feet, and that of vegetation at 12,963.

At sunset of the day of our descent, Popocatapetl seemed on fire, as his peak took on a rosy glow that soon suffused the whole cone; and later, as the sun sank down, and spread its warm coloring over the eastern sky, he appeared as though encased in burnished gold; but as the glowing orb disappeared entirely, he relapsed into livid white, standing there, a mountain of marble, against a cold steel-blue sky. The Woman in White did not share in this after-glow of the sun, but remained resting without change upon her bier, a slight mist draping and giving her the pallor of a corpse.

It snowed that night at the rancho, and the next morning the whole cone was covered deep, even down among the pines. The sand-field that we had ploughed through the day before was heaped high with drifts, so that we could not have crossed it. El Pico del Fraile was hung with huge icicles, and our hut was white with snow, which dripped off as the sun came up. The day was calm and clear, the valley below was buried in a dull blue vapor, through which lakes and villages barely glimmered; and sparrows and snowbirds gathered about the door, thus completing the illusion of a northern day in spring. Finally, we filed through the valley pass, beneath the silent pines, breathing an air delicious with balsam, brisk and exhilarating, and so turned our backs, with deep regret, upon Popocatapetl, monarch by natural right of Mexico.

MEXICAN VOLCANOES.

1 Popocatapetl.
2 Iztaccihuatl.
3 Nevada de Toluca.
4 Ajusco.
5 Orizaba.
6 Cofre de Perote.

XX.

A JOURNEY IN A DILIGENCE.

IN the week in which the ascent of Popocatapetl was undertaken, I was particularly favored, for it does not often fall to the lot of man to witness a genuine, sanguinary bull-fight, to climb to the top of the highest volcano in North America, and to attend a banquet to the highest dignitary of our country, all within the space of seven days.

Yet I accomplished them all, and to this day cannot say which I relished most, — fight, feast, or climb. I think that our Minister's reception to Grant also occurred that week, when, through the kindness of our diplomatic representative, Mr. Morgan, I had the privilege of an interesting conversation with the former leader of our armies. General Grant confessed that he too had essayed Popocatapetl, when stationed at Amecameca, during the Mexican war, and had performed the ascent only after a great deal of difficulty.

He was plain Lieutenant Grant at that time; but, though he had since climbed to grander heights than many of his contemporaries, he could not then have been more affable and delightful than we found him in Mexico. I believe he would rather have ridden through the pines of Popocatapetl, to feast his eyes upon the glorious scenery that greets one when beyond the snow-line, than attend another one of the feasts and receptions that so often wearied him.

Banquets and receptions are, I suppose, nearly the same the world over, the difference merely being in the men who give and the men who receive them; all, as a rule, are a "weariness to the flesh." This granted, I take occasion to hasten away from the city, and start on a little journey southward.

The day of the diligence — of the good old-fashioned stage-coach — in Mexico is drawing to a close, for the railroad is pushing it from point to point, farther and farther into the wilderness and away from the larger towns and cities. But there are certain places to which, even after the advent of the engine, the coach will be preferred by travellers open to the beauty of scenery along the road, and who wish to lose none of the mountain views about the valley of Mexico. Cuernavaca is one of these: separated by mountains from the capital, the journey thither by diligence is one of the most interesting that can be made, for it is surrounded by the halo of one of the most adventurous exploits of Cortés, and lies in a valley open to the influences of a perfectly tropical climate.

At six in the morning, the diligence dashes out of the great portal of the Diligencias Generales, rattles through the streets awhile, and then takes to the open plain surrounding the city. A seat to Cuernavaca costs $4.50, and fifty cents extra for every arroba of luggage more than one. Nine mules constitute the complement to each team, and these are kept on the gallop by the driver, who cracks a very long whip with great energy, and by his assistant, who casts stones at their ears with an accuracy of aim as wonderful as it is effective.

I had secured a seat in the diligence with a special view to inspecting the scenes made famous by their connection with the ancient (Spanish) and comparatively recent (American) occupations of the valley by the respective armies of Cortés and Scott; but the jolting of the conveyance was such that I was sorely disappointed, as well as severely shaken, and we sped out of the city gate, which was menaced by the gallant Twiggs, and past Churubusco with its ruined walls, where the tide of battle surged and ebbed, and up into the foot-hills, with hardly a glimpse of most ancient Coyoacan, where Cortés held his headquarters during the siege of Mexico. Even Mexican mules must slacken their speed, however, when among the roughest of Mexican hills; and as they paused a little for breath, we craned our necks out of the windows for a backward glance at the great vale of Anahuac, which lay between us and the

rising sun. Ah, glorious valley! right willingly would I be thumped and pounded by a hundred diligences, could I transport myself at will back to thy eastern or thy western brim! How sorry am I that I was not with Cortés and his knights when they first peered within its precincts, that I might give vent to my admiration; but now, coming at this late day, others have preceded me, and have exhausted the vocabulary of praise in its description.

Yet consolation comes in the thought that great minds have been quickened by these same scenes, — Cortés, Humboldt, Clavigero, Prescott, Southey. Recall, now, the poet's description of the vale of Aztlan, as it burst upon the view of the astonished and delighted Madoc: —

> "From early morning till the midnoon hour
> We travelled in the mountains; then a plain
> Opened below, and rose upon the sight,
> Like boundless ocean from a hill top seen.
> A beautiful and populous plain it was;
> Fair woods were there, and fertilizing streams,
> And pastures spreading wide, and villages
> In fruitful groves embowered, and stately towns,
> And many a single dwelling specking it,
> As though for many a year the land had been
> The land of peace. Below us, where the base
> Of the great mountain to the level sloped,
> A broad blue lake extended far and wide,
> Its waters dark beneath the light of noon.
> There Aztlan stood, upon the farther shore;
> Amid the shade of trees its dwellings rose,
> Their level roofs with turrets set around,
> And battlements all burnished white, which shone
> Like silver in the sunshine."

I do not wish to administer doses of Cortés *ad nauseam;* but this journey has as its special object a visit to the country-seat of the famous conquistador, acquired after he had subjected the Aztecs and had been created Marquis of the Valley. The scene of his most remarkable exploits lies before us, not only in the city we have just left, but at the foot of the hills we are now climbing. Nearest to us now is the town of Xochimilco, on the borders of the lake of the same name, where the brave Mexi-

cans once came near making the general a prisoner, and all but succeeded in carrying him off captive to the temple of sacrifice, where the great drums of serpent-skin were already beating in anticipation of the event. Ah, if they had! But then there would have been no conquest, and we should have been left without an object for this little journey. Perhaps it was as well for all concerned that he was not taken.

ON THE WAY TO MARKET.

It was noon, and we had climbed up from the valley to an altitude which placed us well inside the zone of *tierra fria;* we had passed gray and gnarled olive orchards, — successful witnesses to their introduction from Spain, — vineyards, pulque plantations, and scattered villages, and as the sun attained a position directly above the valley we halted for breakfast. Not to seem disrespectful, I will call La Guardia a hamlet, though one house and half a score of huts comprised hamlet and hotel. *Chile con carne* and chicken, frijoles and tortillas, — the reader most assuredly knows what these are by this time, — washed down by pulque, was the breakfast here given us, for the sum of fifty cents. The hut was rough,

dirty, thatched, its only adornment being pottery of various patterns and colors, the meal was hustled on to the table in a most unceremonious manner, and the driver drew his sustenance from the fire before it reached us; yet we grumbled not, for the table-cloth was clean.

As we went on we were met by numerous Indians, bearing heavy loads upon their backs, on their way to the market at Mexico. They were cheerful, though taciturn, and they excited my wonder at their endurance, some of them making a distance of sixty miles to market. When arrived at their destination they sell their burdens for a few reales, scarcely ever more than a dollar or two, and trudge home contented, after filling their skins full of pulque. The loads they carried were crates of tomatoes and pumpkins; one had a couple of dozen fowls, another a load of parrots, fifteen in number, for which he asked two reales each. Some of these carriers have made (without burdens) the distance from Acapulco to Cuernavaca, eighty leagues, in seven days.

The last view of the valley of Mexico is cut off just before La Guardia is reached, and about two leagues beyond is the famous Cruz del Marques, the stone cross marking the boundary line of the former possessions of Cortés; and this landmark is at a point 9,700 feet above the sea. A great pine forest mantles the ridge, through which the coach bowls merrily, accompanied by the guard, — for "road agents" here watch their opportunity with an eye to business, — and said "guard," of four soldiers, in straw hats and ragged cotton garments, carrying rusty and antiquated muskets, is forced to shuffle along on foot at a lively gait, or get left behind to the tender mercies of the bandits.

The pine forests of these mountains are all alike, resembling the "parks" of Arizona and New Mexico, with great trees, cloud-reaching, and a soil thinly covered with grass. Not far beyond the Cruz del Marques, the descent begins into the valley of Cuernavaca and towards the western coast. This descent, from the plateau to the *tierra caliente*, is more abrupt than on the eastern slope, and consequently we dash at once from one zone

into the other, and through the pines, while yet in the mountains, gain glimpses of fields of sugar-cane and the fresh verdure of a foliage that frost never injures. We rattled down the hills, crossing more streams than on the eastern side of the range, the heat growing stronger, though the afternoon was waning, and reached the town at four.

Having a letter to the chief missionary of the Protestants, from my good friend Mr. Patterson of Mexico, I set out in quest of him, and it surprised me to learn that hardly any one in this very small city could direct me to the mission. At last I found *el templo*, the mission building, a long and low structure built around two sides of a square, and the kind pastor insisted that I should at once take up my quarters with him. A "shake-down" was provided, at the expense of a visiting missionary from the country, who slept on two benches wrapped in his sarape, and, though warned of the scorpions of Cuernavaca, which delight in dropping upon a sleeper unawares, I was at an early hour asleep in the hot country again. The mission here, purchased with much difficulty by Mr. Patterson, is a valuable property, and includes not only a lovely garden, and a fountain fed by a perpetual stream, but a large field of alfalfa and plantains. The devout and earnest Mexican minister in charge had collected a flock of some seventy sincere converts, and was laboring, under many disadvantages, to add to the number from among his neighbors and fellow-countrymen. None of them spoke English, but that did not seem to render them unhappy, and they had acquired the good old Methodist fashion of calling one another brothers, *hermanos*, and sisters, *hermanas*, and of praying with an unction that was all the more impressive from being in the sonorous Spanish tongue.

Now I was not on a religious mission, although my lines were for the nonce cast with the missionaries; but was quite well satisfied with much smaller game than that afforded by the genus *homo;* for while my friends were directing their efforts towards bagging the Mexican, I was merely hunting birds and butterflies. But they graciously relaxed their pursuit of the larger quarry long enough to accompany me on mine of the

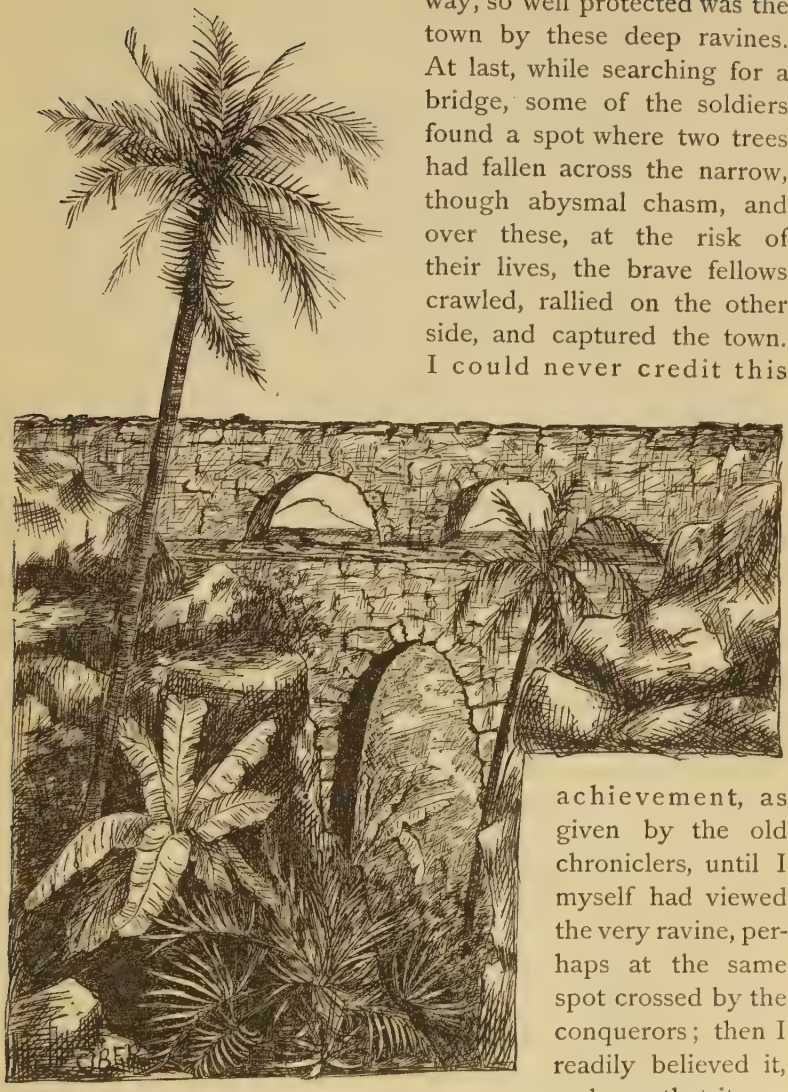
smaller, and hence I was never without a "brother," — *un buen hermano*, — to guide me to the haunts of the denizens of the fields.

Fair Cuernavaca! It well merits the ancient name, *Cuauhnahuac*, or Flower-surrounded. The casual visitor sees few of its charms, for they lie concealed in the suburbs, and in gardens enclosed by formidable walls; its architecture is not of the finest, and only the convents and churches are in any wise remarkable. The town lies about four thousand feet above the sea, built on a spur of land jutting out from the mountains, between two *barrancas*, or ravines, of great length and dizzy depth. With heat and water at command, its vegetation is luxuriant, and its suburbs are one continuous garden.

At five in the morning of the 31st of May, I was awakened by the singing of the wrens in the roof, and shortly after Pastor Pastrana, with two of the ever-faithful brothers, guided me to the southern barranca. It cannot be less than two hundred feet deep, and between its narrow walls a thread of a stream tumbles to the gravelly bottom, which we reached by cautiously stealing along the cliff, and looked out through the fleecy veil from a deep cave worn by the water behind it. Empress Carlotta has been here, and astonished the natives by walking along a narrow shelf of rock beyond, where it was very risky; above were the towering walls of basalt, below the gravelly bowl, fifty feet across, into which the stream fell. We wandered through corn-fields, and along a side-hill covered with plantains and guava trees, their roots watered by gentle streams, and peered up through their branches at the blue sky beyond, but without getting many birds, or even moths or butterflies.

Two great barrancas, as I have said, run down from the mountain, and, meeting below Cuernavaca, enclose it in their embrace. It thus occupies an almost impregnable position, so far as danger from assault is concerned, and was one of the most difficult of captures during the Spanish invasion. Coming up from the lake of Chalco, in the spring of 1521, while preparations were going on for the investment of Mexico, the Spanish army attacked Cuernavaca. For a long time they could make no head-

way, so well protected was the town by these deep ravines. At last, while searching for a bridge, some of the soldiers found a spot where two trees had fallen across the narrow, though abysmal chasm, and over these, at the risk of their lives, the brave fellows crawled, rallied on the other side, and captured the town. I could never credit this



THE DOUBLE AQUEDUCT.

achievement, as given by the old chroniclers, until I myself had viewed the very ravine, perhaps at the same spot crossed by the conquerors; then I readily believed it, and saw that it was possible, though hazardous, for them to accomplish it, and do not wonder that some fell, through dizziness, and were killed. It is the eastern

chasm that is narrowest, being about seventy feet in depth and not over thirty (I should think) in breadth; and it is spanned by the quaintest structure of masonwork for a bridge that ever leaped across a ravine, being a double arch, one of which carries an aqueduct, from which the water trickles down the steep, fern-hung walls of stone, and patters far below into the water beneath. Among many rough sketches of Mexican scenery contained in a portfolio stolen from me in the city of Mexico, was one of this old bridge; and the only consolation I ever got from this loss was the reflection that among other papers then lost was a particularly caustic description of the Mexican himself, drawn as from the standpoint of a decided pessimist.

The greatest attraction in town, save one, is the "Garden of Laborde." In the year 1743, a poor youth named Laborde came to Mexico, where eventually he gained immense wealth, twice making, and once losing, a vast fortune, which at his death he gave to the Church. In Cuernavaca he built a *buen retiro*, a pleasure garden, on a more magnificent scale than any since the time of the Aztec and Tezcocan monarchs. This magnificent work of a century ago is still in good preservation here, and is shown to visitors, who are admitted at the cost of a real each. The grounds adjoin a church and convent, founded by Laborde, that now are going to ruin, and run back from one of the principal streets of the town to the brink of the western ravine. At the angles of the high and massive walls *bellevues* arise, commanding extensive and beautiful prospects, directly above the barranca, overlooking its winding course and the great sweep of mountain and plain to the south and to the west. To these bellevues broad stone ways lead up from the centre of the garden, covered with hard plaster, painted in red and white, bordered with stone pillars supporting vases of flowers. The grand feature of this garden, with its palms and ferns, its choice exotics and profusest vegetation, is the central lakelet in a stone basin five hundred feet long, with artificial islets containing magueys and tropical plants. There is water enough stored here for the supply of a small town; it gushes out everywhere, in fountains, into reservoirs of hewn stone, and is guided in rivulets to the feet

of golden-fruited mangos and oranges. What a paradise it must have been in the time of its owner, the fortunate miner, and what a delightful retreat for the unctuous padres who subsequently came into possession of it! Above the trees towers the dome of the old church, and alleys covered over by giant roses and grape-vines lead up to the refectory of the convent, where once the good monks regaled themselves.

After the subjugation of its original possessors, Cuernavaca attracted to itself many Spaniards, but none was so successful as the Marquis, Cortés the Conqueror, who here built his country residence, — in fact, established himself here, devoting himself to agricultural pursuits with an ardor only equalled by that with which he had pursued the Indians a few years before. Go down the street leading to the eastern part of the town, and there you will find *El Palacio de Cortés*, the Castle of Cortés, the veritable building which he built for his own dwelling, and in which he planned the cultivation of his ample estate, and later the discovery of the Gulf of California and the peninsula. To him the planters were indebted for the introduction of Merino sheep, it is said, and for the first sugar-cane that ever lifted its tasselled head beneath the sun of Mexico. It was right here, in this vale of Cuernavaca, that these things transpired, three centuries and a half ago; and not only the old castle, with battlemented roof and arched entrances, remains, yet in good preservation, to remind us of the industry of Cortés, but the valley plains are waving billows of green and succulent cane. The castle itself, now occupied as a municipal building, rises directly above the eastern barranca, and from the upper corridor, where are the halls of justice, is a grand view of the town, with its three large churches, its stone houses, and its gardens. Eastward are many lovely cabins, just peeping out of gardens of fruit trees, a varied carpet of green from which a dome protrudes here and there, and the plains sweep away below. This was a well-chosen spot, for it commands not only the valley and the mountain passes, but views extending away east to Popocatapetl.

There are vast sugar estates below the town, some of the haciendas dating from the period of the conquest, and producing

a million pounds each of sugar annually, it is said, besides coffee and cacao. These haciendas have great mills equipped with the best machinery known for crushing the cane, evaporating and crystallizing the juice, and distilling rum therefrom. In themselves, they do not cover a great stretch of territory, but monopolize all the fertile land in the entire region. What I would say is, that there is not the faintest show of an opportunity for foreign capital or energy to work to advantage in or near the valley of Cuernavaca. And this statement will apply in a measure to nearly every portion of Mexico, especially as regards operations in agriculture.

One morning — it was the 1st of June — my clerical friend and myself went down among the coffee groves, and were directed to search for birds in a near plantation, to reach which we passed through a nicely cultivated field of sweet potatoes, and then followed a wall and an irrigating ditch to the banana and plantain forest. Ah, the beauty of these gardens of plantains, which fully realize one's idea of an Eden in the tropics! Nothing else grows beneath them, — nothing there but their great silken, banana-like leaves, hanging from the smooth stems, arching over you, and perhaps trailing on the ground.

We crossed, later, a deep barranca, and came to a village hidden in trees, where streamlets gurgled through the streets, and the gardens were full of flowers. In the yard of one of the cabins we beheld a phenomenon which we could not account for, — a tree with bare limbs ejecting fine streams of water which fell in spray. I wondered at it, but accepted the fact that the tree did it, and was about putting it down in my note-book, — "Great discovery; wonderful weeping-tree of Cuernavaca." But just as we were going away, I thought I saw something move, and by attentive examination made out an insect called there the *chicharra* (*Cicada spumaria*, or harvest-fly). The tree was covered with them, squirting in all directions, and giving to it the strange appearance that had attracted our attention. There was something that might have been published as a botanical curiosity changed into merely an insect phenomenon! These insects were old acquaintances, after all,

as I had seen them in abundance in the island of Tobago, near the coast of South America, where they make a noise so much like the distant whistle of a locomotive that I have often jumped from some solitary path, on hearing one suddenly start up, thinking a steam-engine was close behind me.

In directing our steps toward a chapel called Chapultepec, we had to cross a field in which some men were working, and waded through a rich crop of alfalfa. A dog barked at us, but the owner did not "sing out," as a Northern farmer would have done, "What ye doin' in that grass?" He saluted us politely, and kindly pointed out to us the road to take. And so we went on, through lanes bordered by flowering trees, until we reached the chapel, into the tower of which we climbed for a view, and found a stone there with the date *año de* 1739, — pretty old for the United States, but recent for Mexico. I gave some boys there a *centavo* each, at which a smile rippled all over them, and when we came to leave, they bade us a most affectionate good by. I remarked that they seemed like very good boys, but my friend the missionary objected, saying that they were *muy fanaticos;* that the priest was their only god, — *El padre es el dios del pueblo;* that it was a bad place, where they frequently killed the Protestants, — *Ellos mataron los Protestantes.* It may have been so, though I saw nothing but peace and good will; or it may be that he, being a Protestant Mexican, is prejudiced. But he said they threatened to kill him, only a year ago, and I suppose I might feel the same, if they had offered to kill me.

My friend risked his life pretty freely, at all events, in going about with me, for there was scarcely a place of interest which we did not visit. On June 2d we set out for the famous, yet little known ruins of Xochicalco, about the locality of which my guide knew as little as myself, yet he confidently engaged to pilot me to the spot.

The road we were following was the famous "Acapulco Trail," leading from that part of the Pacific to the city of Mexico, and which has been worn by the feet of countless mules and *burros* for three hundred years and over. It is a twelve-days journey from the capital to Acapulco, and one must procure his entire

outfit in the city he leaves, unless he chance to fall in with a *conducta* on the route, which is of rare occurrence. That picturesque port of Acapulco has of late years fallen into disuse, since new ways have been opened across the continent, but in olden times it was a busy and a celebrated maritime city. To it went, and from it sailed, all those grand old galleons, which performed their portion of the voyage between the Indies and Spain, six months, sometimes, on the voyage between Manilla and the Mexican coast. Arrived there, the rich freightage was transported overland by a thousand mules and donkeys, and such portion as was not sold in Mexico reshipped at Vera Cruz for Spain. Sometimes the cargo reached the value of two million dollars; and as but one ship arrived in the year, it was looked for by merchants and mariners along the entire coast of Mexico. It brought calicoes and muslins, silks, jewels, and spices, and carried back silver, cochineal, cacao, and monks and priests as passengers. Bret Harte gives the best picture of those golden days in his "Lost Galleon": —

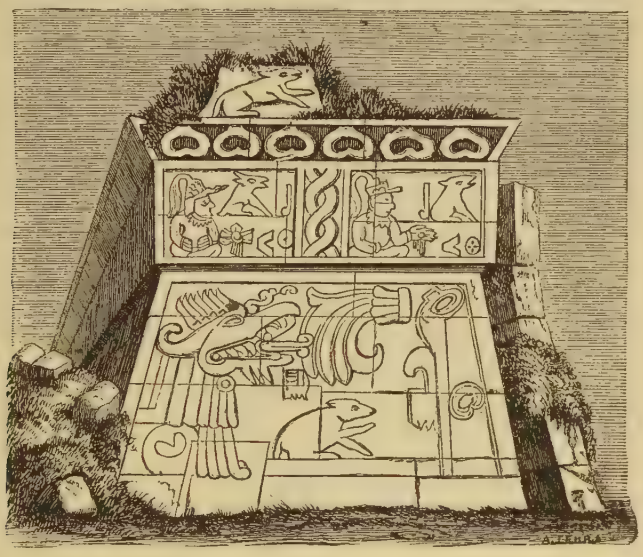
"In sixteen hundred and forty-one,
The regular yearly galleon,
Laden with odorous gums and spice,
India cotton and India rice,
And the richest silks of far Cathay,
Was due at Acapulco Bay.

. . . .

The trains were waiting outside the walls,
The wives of sailors thronged the town,
The traders sat by their empty stalls,
And the Viceroy himself came down;
The bells in the tower were all atrip,
Te Deums were on each father's lip,
The limes were ripening in the sun
For the sick of the coming galleon."

More ancient than the institution of trade between Mexico and the Indies was the object of our search that morning in early June. "Six leagues from Cuernavaca," says a writer of forty years ago, "lies a *cerro*, three hundred feet in height, which, with the ruins that cover it, is known as Xochicalco, or the 'Hill of Flowers.' The base of this eminence is surrounded

by the very distinct remains of a deep and wide ditch; its summit is attained by five spiral terraces; the walls that support them are built of stone joined by cement, and are still quite perfect; and at regular distances, as if to buttress these terraces, there are remains of bulwarks shaped like the bastions of a fortification. The summit of the hill is a wide esplanade, on the eastern side of which are still perceptible three truncated cones, resembling the *tumuli* found among many similar ruins in Mex-



EL CASTILLO, XOCHICALCO.

ico. The Castillo, on the top of the last terrace, is a rectangular building, measuring above the plinth sixty-four feet long by fifty-eight deep on the western points, and faces in exact correspondence with the cardinal points."

At a little hamlet called Xochitl, we found Señor Carpentero, a brother Methodist, who lived in a thatched hut with the eaves but three feet from the ground, and who furnished us with a guide for the pyramid. The guide demanded fifty cents for his services, expecting, apparently, that I would be deterred from my purpose by such an exorbitant price; but I closed the bar-

gain at once, and he mounted his jackass, hung a calabash of water to his saddle, and led the way to the sugar hacienda of Xochitl, whence we took a path among the hills of Xochicalco. All the fields were thickly covered with volcanic *débris*, and the open shaft of many a mine showed that silver had been found here in small quantity. The heat was intense, and I was in agony from it for nearly two hours, until we reached the great hill, and slowly climbed the terraced slopes.

As this hill commands the whole valley, save for another cerro to the east, a glorious prospect is spread around, but chiefly of barren hill and plain, with two lovely lakes lying to the south, and barrancas everywhere dividing the surface. This cerro is directly north from the valley of Mexico, and the lights of the people who occupied it must have guided the ancient Aztecs as they came from their capital, going south, for it is in full view from the mountains. "The stones of the crowning structure are laid upon each other without cement, and kept in place by their weight alone; and as the sculpture of a figure is seen to run over several of them, there can be no doubt that the *bassi rilievi* were cut after the pyramid was erected." Stones seven feet in length by nearly three in breadth are seen here, and all the great blocks of porphyry which composed the building, and perhaps encased the entire cerro, were brought from a distance, and borne up a hill three hundred feet in height.

As a ruin little visited, and standing apart from every other group in Mexico, not only isolated by position, but unique in its structure and carvings, this Castillo of Xochicalco deserves minute description. It was mentioned by Humboldt, perhaps visited by him, as he came up to the Mexican valley from Acapulco, and must have passed within a few leagues of it on the road; but the last writer who refers to it wrote over thirty years ago. He says: —

"Who the builders of this pyramid were, no one can tell. There is no tradition of them, or of their temple. When first discovered, no one knew to what it had been devoted, or who had built it. It had outlasted both history and memory. . . . . No one who examines the figures with which it is covered can

fail to connect the designs with the people who dwelt and worshipped in the palaces and temples of Uxmal and Palenque."

After we had rested and had examined the massive structure at the summit, myself and the missionary crept over the hill by a narrow path, through thick bushes, and found a black hole leading underground into a great cavern. This cavern, or series of vaults, was partially explored by order of government, nearly fifty years ago; but the superstitions of the Indians (who believe them haunted by the spirits of their ancestors) prevented a thorough examination. We investigated the chambers as far

SCULPTURED FRAGMENT FROM PALENQUE.

as we could by the aid of a sputtering candle, and were lost in wonder at their height and extent. The old explorers mention a "cupola" of cut stones, diminishing gradually in size as they neared the top, and forming a beautiful mosaic, with an aperture through the roof of the cavern, which was supposed to lead to the temple above. This we found in the centre of the main saloon, said to be ninety feet in length, but it was divested of its cut and wrought stone. Instead, we found that the walls and floor were covered with a very hard and smooth cement.

Although these crypts may have connection with the temple

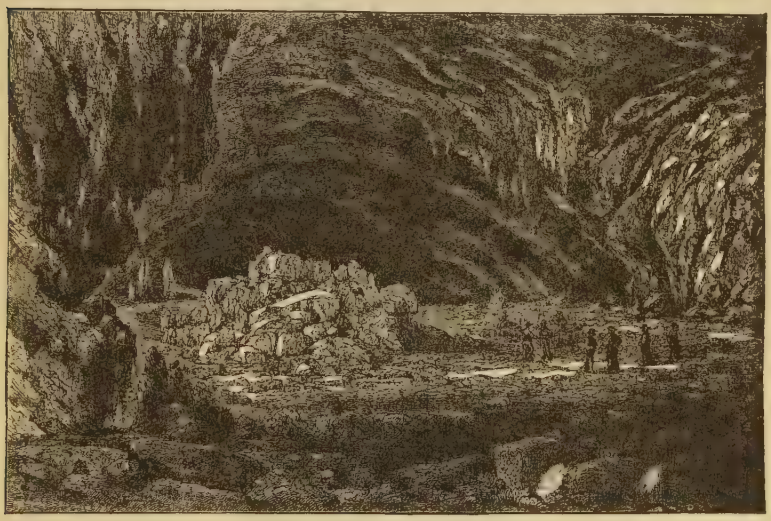
on the summit of the hill, yet the caves we entered, two in number, were in a *cerrito*, at a little distance from that supporting the Castillo. Chill and damp were these caverns, though outside was the terrible heat of a Mexican midsummer noon. Scorpions and serpents were said to lurk here, — this is the excuse the Indians gave for not wishing to explore the dark passages, — yet we saw none. Doubtless, some one could find here sufficient to reward him for a week of arduous labor. We had not the time nor the money for exploration, and so we turned away from these grand ruins with reluctance.

Of the journey back to Cuernavaca I recall little that would seem of interest, except a solitary Indian village, where the people seemed to shun us, and an ancient stone bridge, spanning a deep ravine by a single arch, and just wide enough, without an inch to spare, for our horses to walk across it. My guide said it was made by the very ancient Indians, the same who built the Castillo, and was used by them on their pilgrimages to the valley of Mexico. It is not improbable, as its arch was not the true arch of the present day, but nearly approaching that seen in the Maya ruins of Yucatan, and its every aspect indicates great age, and a workmanship entirely different from Spanish or modern Mexican.

It was a matter of great regret that I could not visit the great cave, called Cacahuamilpa, situated to the southwest of Cuernavaca some thirty miles, which is of unknown extent, though it has been explored for a distance of three or four leagues. Its existence was unknown previous to 1835, when a criminal used it as a place of refuge, and it was subsequently explored. Celebrated travellers have visited this famous cave, and only a few years ago a great cavalcade of Mexican notables, headed by the President, made a journey to the place, and met with numerous accidents and incidents. The entrance to this enormous cavern is about one hundred feet in width, the passage descending to a vast gallery divided fantastically into different *salas*, or halls, to which the different fancies of travellers have given different names. The first is the *Sala del Chivo*, or the Goat Saloon, from an agglomeration of stalactites in the shape

of an enormous goat, which was the terror of all the Indians until some one broke off and carried away its head.

Next is the *Sala del Muerto*, or Saloon of the Dead, because in it was found the skeleton of a man partially covered with a crystalline deposit. The Saloon of the Palm, *El Tronca de la Palma*, contains a glorious stalagmite of a palm white as alabaster, and thence a flight of natural steps lead into the Saloon of the Cauliflowers, or the Chandeliers. In the Organ Gallery, *Sala de los Organos*, there is "an amphitheatre with regular



CAVERN OF CACAHUAMILPA.

benches, surmounted by a great organ, whose pipes, when struck, give forth a deep sound." And — it has been declared by every one who has been there — all these glorious galleries are adorned by nature's hand with objects of such beauty that no description can do them justice.

Forms of bewildering beauty greet the gaze of the explorer everywhere, and to one who delights in the strange and weird, the trip to Cacahuamilpa, difficult though it is, would be an extremely profitable undertaking. Guides can be obtained at the neighboring village, with various colored lights and fireworks to

illuminate the crystal walls, and scanty information may sometimes be extracted from the innkeepers of Cuernavaca. The best account of it I have been able to find is contained in Madam Calderon's "Life in Mexico," and in *Una Excursion a la Caverna de Cacahuamilpa*, by Señor Antonio Cubas. The last-named author is a faithful and picturesque writer, a geographer and statistician. He makes mention of Cuernavaca as one of the loveliest retreats of the *tierra caliente*, and calls attention to the gardens of Maximilian, within a league of the town.

LA POLLERA.

XXI.

THE MEXICAN RAILWAY MOVEMENT.

ONCE in the city of Mexico, we find ourselves at the starting-place and the objective point of nearly all the railways of the republic, from the multitude of which it is somewhat difficult to determine where all are coming from, and where they will find terminal stations.

The growth and development of these great lines has had an important bearing upon the progress of Mexico and the expansion of her commerce, — not to speak of their influence in promoting commercial and social intercourse with the United States, — and without a chapter exclusively devoted to railroads this work would be incomplete. It may, however, be passed over by the general reader, without interrupting the continuity of my narrative of travel.

It was in the year 1837 that the first government decree was issued granting a concession for the building of a railroad, from the city of Mexico to Vera Cruz; but the projector was unable to construct any portion of the road, and the grant was declared forfeited. On the 1st of May, 1842, an exclusive privilege was given for establishing a line across the isthmus of Tehuantepec, and on the 31st of the same month Santa Anna, then occupying the chair of the Executive, decreed the re-establishment of an old duty at the customs, called *averia*, or average, the product of which tax (two per cent additional over and above all import duties) was to be given to promote the building of a railroad inland from Vera Cruz.

This road was commenced, but the first really energetic work looking to the connection of the coast and the table land was in 1857, when Don Antonio Escandon secured the right to con-

struct a line from the Gulf of Mexico to the Pacific. Revolutions disturbed the country, so that several years elapsed before active labor was entered upon, but in 1863 Señor Escandon was secured in his concession, and a consolidated fund of the public debt was created, amounting to $8,000,000, bearing five per cent interest, the capital to be paid up at the end of twenty-five years.

The war of the intervention prevented operations until, in 1864, Señor Escandon transferred his concession to the "Imperial Mexican Railway Company," which transfer was approved by Maximilian in January, 1865. After these various delays, work was begun at either end, and on the restoration of the republic one hundred and thirty-four miles were found completed. Although, upon the resumption of power by Juarez, the concession was declared forfeited, "for having contracted with a government seeking the overthrow of the Mexican republic," yet, in May, 1867, a decree was issued restoring its rights, and in November of that year work was resumed. Under the general direction of Mr. Buchanan, C. E., the rugged country between Orizaba and the plateau was entered; in September, 1869, the branch line from Apizaco to Puebla was inaugurated, and the section from Vera Cruz to Atoyac, fifty miles in length, was opened in 1870. The important city of Orizaba was placed in connection with the coast in September, 1872, and on the 1st of January, 1873, the entire line was completed from the Gulf to the city of Mexico, and solemnly inaugurated by Señor Lerdo de Tejada, President of the republic.[1]

The advantages resulting from the completion of the "Mexican Railway," as this first iron road in the country was called, were so manifest, that it soon seemed equally desirable that Mexico should have rail connection with the United States. To this end many persons sought government aid. Under the wise rule of Lerdo and the progressive administration of Diaz, all enterprises of this character were encouraged. Capital was eager to invest in railways in a country that possessed neither canals

[1] See History of the Mexican Railway, Mexico, 1876; and *Los Ferrocarriles Mexicanos*, Mexico, 1881.

RAILWAYS AT THE CAPITAL.

nor navigable rivers, and under a government which seemed disposed to foster all undertakings which promised the development of its internal resources. In 1881, in a pamphlet entitled *Los Ferrocarriles Mexicanos*, an eminent Mexican published a list of forty-two concessions, — since increased by five others, — few of which had subventions (or government aid) less than $8,000 per kilometre. Many of these are small concessions, several will fail to be built from lack of capital, and most of them have been merged into the greater lines, such as the Central and the National.

The concessions granted by the Mexican government, up to date, are as follows: —

	Name of Railroad.	Date of Concession.	To what Parties granted.	Length in Kilometres.	Subvention per Kilometre.	Total Subvention to each Line, due on Completion.	Gauge.[1]
1	Tehuacan to Esperanza	Aug. 14, 1877	General Government	50		298,500	S.
2	Celaya to Leon and Guanajuato	Dec. 21, 1877	Gov't of Guanajuato	125	8000	1,000,000	N.
3	Mexico to Toluca and Cuautitlan	Dec. 22, 1877		120	8000	832,000	N.
4	Salamanca to Pacific Coast	Jan. 28, 1878	Gov't of Michoacan	660	8000	5,280,000	N.
5	Ometusco to Pachuca and Tulancingo	Feb. 2, 1878	" of Hidalgo	92	8000	736,000	N.
6	San Luis Potosi to Tantoyuquita	" 14, 1878	" San Luis Potosi	209	8000	1,672,000	N.
7	Lagos and Guadalajara to San Blas	" 27, 1878	" Jalisco	737	8000	5,896,000	N.
8	Celaya to San Juan del Rio	" 28, 1878	" Queretaro	104	8000	832,000	N.
9	Tehuacan to Puerto Angel by Oaxaca	Mar. 22, 1878	" Oaxaca	519	8000	4,152,000	N.
10	Vera Cruz to Alvarado	" 25, 1878	" Vera Cruz	132	8000	1,056,000	N.
11	Tantoyuquita to boundary line between San Luis and Tamaulipas	" 27, 1878	" Tamaulipas	105	8000	840,000	N.
12	Merida to Peto passing by Ticul and Tekax	" 28, 1878	" Yucatan	126	6000	756,000	N.
13	Zacatecas to S. Luis; Aguascalientes, & Lagos	" 28, 1878	" Zacatecas, etc.	448	8000	3,584,000	N.
14	Port of Manzanillo to Tonila	" 30, 1878	" Colima	104	8000	832,000	N.
15	Mexico to the bank of the Amacuzac	April 16, 1878	" Morelos	395	8000	3,160,000	N.
16	Matamoras Izucar	May 6, 1878	" Puebla	57	8000	456,000	N.
17	San Martin Texmelucan	Nov. 14, 1878	General Government	37	.....	....	S.
18	Cuautitlan to Salto	April 2, 1879	Toluca Company	63	7000	... ...	N.
19	Tehuantepec	June 2, 1879	Edward Learned	200	7500	1,500,000	S.
20	Matamoros to Monterey	June 7, 1880	Gov't of Tamaulipas	400	8000	3,200,000	N.
21	Mexico to Acapulco	1880	" Guerrreo	465	8000	3,720,000	N.
22	Chihuahua to Villa del Paso or that of Ojinaga	July 9, 1880	" Chihuahua	350	8000	2,800,000	N.
23	Patzcuaro to Morelia and Salamanca	" 15, 1880	" Michoacan	169	8000	1,352,000	N.

[1] S. is for Standard gauge, 1.435 metres in width; N. for Narrow gauge, 0.914 metre in width.

	Name of Railroad.	Date of Concession.	To what Parties granted.	Length in Kilometres.	Subvention per Kilometre.	Total Subvention to each Line, due on Completion.	Gauge.
24	Port of Altata to Culiacan and Durango	Aug. 16, 1880	Gov't of Sinaloa	440	8000	3,520,000	N.
25	Anton Lizardo to Huatulco and Puerto Angel	" 25, 1880	" Oaxaca	450	8000	3,600,000	N.
26	Jalapa to San Andres Chalchicomula	Sept. 6, 1880	" Puebla & Vera Cruz	80	8000	640,000	N.
27	San Agustin to Huehuetoca	" 7, 1880	" Hidalgo	50	8000	400,000	N
28	Mexican Central Railway Company	" 8, 1880	Limited Company [1]	2435	9500	23,132,500	S.
29	Mexican National Construction Co.	" 13, 1880	Co. represented by Sullivan & Palmer	915	7000	640,500	N.
30	San Martin to Railroad of Hidalgo & Tlascala	" 14, 1880	Gov't of Tlascala	1043	6500	6,779,500	N.
31	Puebla to San Marcos	" 14, 1880	" Puebla	65	8000	520,000	N.
32	Merida to Kalkini and Celestum	" 14, 1880	" Yucatan	51	8000	408,000	N.
33	Guaymas to the Northern Frontier (Sonora Road)	" 14, 1880	Limited Company [2]	142	6000	852,000	N.
34	Patzcuaro to the Pacific	" 15, 1880	Gov't of Michoacan	457	7000	3,199,000	S.
35	Toluca to Mineral District of Ixtapa del Oro.	Nov. 27, 1880	Jose Maria Amat	342	8000	2,736,000	N.
36	Connection between Tepexpan and Irolo	" 27, 1880	Gov't of Morelos		None		N.
37	Coal-fields of the Rio Yaqui al Morrito	Dec. 15, 1880	Robert R. Symon		6500		N.
38	Merida to Valladolid	" 15, 1880	Francisco Canton	160	None		S.
39	Jalapa to Vera Cruz	Jan. 10, 1880	Ramon Zangroniz	114	6000	960,000	N.
40	Salto to Maravatio by Tepeji and Jilotepec	" 19, 1881	Pedro del Valle		8000	912,000	N.
41	S. Luis Potosi to the Central in Aguascalientes	Feb. 2, 1881	Government of S. Luis & Aguascalientes	150	8000	1,200,000	N.
42	Compañia (Station) and Villa of Tlalmanalco	" 3, 1881	Gov't of Mexico		6000		N.
43	Mexican Southern [3]	Sept. 9, 1880	Matias Romero		6000		S.
44	Oriental [3]		J. Gould & F. de Gresse				S.
45	International	June, 1881	Internat. Const. Co.		None		S.
46	Pacific Coast		J. B. Frisbie		"		S.
47	Topolovampo Pacific	May 23, 1881	De Prida & Pombo		5000		S.

The Mexican railroads, completed and in process of construction, or projected as outlined on the general map, are: —

1. The Sonora Railroad, from Benson in Arizona to Guaymas on the Gulf of California, 352 miles in length. Road completed. Connects (via short link over the Southern Pacific) with the great Atchison, Topeka, and Santa Fé system.

2. The Mexican Central, the main line, about 1,225 miles in length, from El Paso, on the Rio Grande, to the city of Mexico, with branch lines to Tampico, on the Gulf of Mexico, and San Blas, on the Pacific. Trunk line opened March 8, 1884.

[1] Represented by S. Camacho and R. Guzman.
[2] Represented by S. Camacho and D. Fergusson.
[3] United under one management.

3. International, extension of the Southern Pacific and "Sunset Route" system (from San Francisco to New Orleans) from Eagle Pass, on the Rio Grande, to the Pacific, probably, tapping the Central at or near Durango, receiving much valuable through traffic from the south, and sending a direct line to San Luis Potosi.

4. Mexican National, between Laredo, on the Rio Grande (Texas), and Mexico City, with line also from latter point to the Pacific at Manzanillo; narrow gauge; about 2,000 miles, including all concessions.

5. Mexican Oriental, an extension of the vast and comprehensive Missouri Pacific system southward from St. Louis. Shortest and most direct route (when completed) to the capital, where, or at Puebla, it is to connect with the Mexican Southern (Grant road) and extend to the isthmus of Tehuantepec. Total length, about 1,400 miles.

6. Mexican Railway, from Vera Cruz to city of Mexico; length, with branches, about 300 miles. Finished in 1873. The pioneer road of Mexico.

7. Mexican Southern (projected) from the port of Anton Lizardo, south of Vera Cruz, to city of Oaxaca and to Tehuantepec, with connections with Puebla and city of Mexico; total length (proposed), about 500 miles; consolidated with the Oriental.

8. Interoceanic, a proposed narrow-gauge, partly built, between Vera Cruz and Acapulco, of which the Morelos road is the western portion.

9. Tehuantepec, crossing the isthmus at the narrowest part, a little over a hundred miles; formerly granted to an American company, but retroceded to the Mexican government.

10. Yucatan railways: from Progreso (port) to Merida, 26 miles long, broad gauge, steel rails, all equipped; from Merida to Peto (building), narrow gauge; Calkini and Campeche (started); and the "Eastern Railway," from Merida to Valladolid, a much-needed road.

First in point of historic importance is the line known as the

Mexican Railway.[1] This is the representative road, having been begun before the republic was well prepared for the iron horse, and having struggled through sixteen years of revolutions and civil strife. Commenced in 1857, it was not finished till 1873, and cost — owing to the engineering difficulties encountered and the disturbed state of the country — an immense sum, its present liabilities amounting (including stock) to over $39,000,000. This railway has had, says a writer on Mexico, a continuous history of vicissitude, — enough to crush out any ordinary enterprise. Its construction was ruinously delayed and frequently suspended, and its expenditures have been extravagant, probably beyond all precedent.

As it is owned entirely in England, its success does not directly affect Americans. Still, as it is often quoted by American speculators as an instance of successful Mexican railway enterprise, it would be well to inquire what has contributed to make it profitable. Its cost was greatly in excess of what it should have been, — a loss partially balanced by the monopoly it has had, and still keeps, of the transportation of railway material from coast to capital. It should be borne in mind that it is now built, equipped, complete, and in the hands of sagacious managers, who honestly administer its earnings. These were, for the year 1873, $2,117,553, and the net profits, $826,990; for 1879 (material for other roads now coming into the country), $3,257,235; net profits, $1,795,713; for 1880, total receipts, $3,709,910; profits, $2,147,589; for 1881, $4,831,215; net profits, $2,758,729. These estimates, compiled from various sources, will indicate to the reader the growth and ultimate consequence of this railroad.

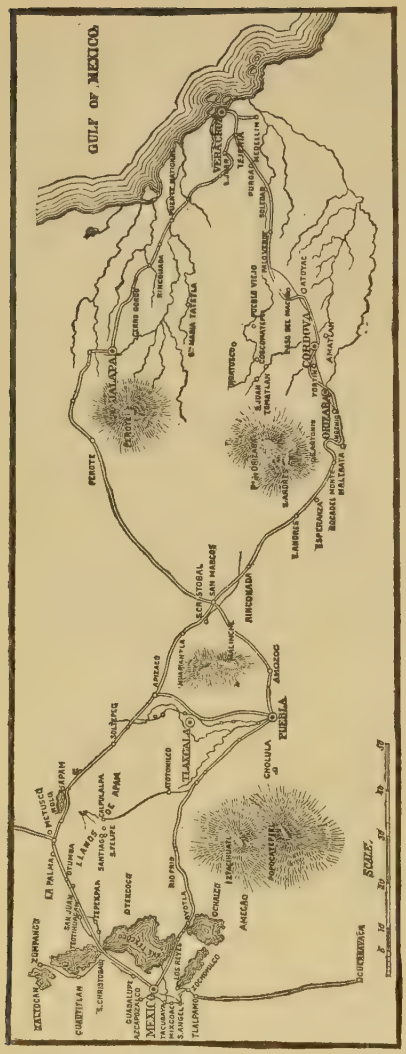
To complete the picture, the following comparison is given, elicited from the eminent Mexican, Señor Romero, by the adverse criticisms of a writer in a popular magazine: "As a test of the capabilities of this road, let us make a comparison between the earnings of the Vera Cruz Railroad and roads similarly situated in the United States. Probably the two lines combining more nearly than any others similar conditions are the Union

[1] For description of this route, see Chapter XI., "From Coast to Capital."

Pacific and the Central Pacific, having heavy mountain grades, long stretches of high table-lands and sea-coast connections. An examination of the official reports show that, in 1880, the gross earnings per mile of these three roads were respectively as follows: Union Pacific, $11,304; Central Pacific, $7,818; Vera Cruz, $12,662. The net earnings per mile were as follows: Union Pacific, $6,168; Central Pacific, $3,913; Vera Cruz, $7,330. The reports for 1881 show the gross earnings per mile to be as follows: Union Pacific, $12,516; Central Pacific, $8,758; Vera Cruz, $16,489; — and the net earnings for the same year: Union Pacific, $6,207; Central Pacific, $3,593; Vera Cruz, $10,098. It will thus be seen that, for the last year, the Vera Cruz road made a net earning of six per cent upon a capital of $168,000 per mile. A very liberal estimate would not place the cost of construction to-day at more than $50,000 per mile, upon which the present net earning would be a return of about twenty per cent. If we accept the Vera Cruz road as an evidence of what may be expected in the working of the railroads now being constructed by American companies, the foregoing exhibit is certainly not calculated to discourage American investers in those enterprises."

Apologists for the road do not fail to call attention to the fact, that the above figures represent the income of a line, including its short branch, less than three hundred miles in length. But it should be remembered that they are the earnings of a road having a monopoly of all traffic between the largest city of Mexico and its only eastern port, and with three fourths of this amount derived from the transportation of material for the construction of other roads.

Passing through the richest portion of the republic in agricultural wealth, — through every climatic zone, in its toilsome march up from the coast to the high plateaux, — it should have developed the resources of the country vastly more than it has done, for everything it is possible to raise in Mexico can be produced along its line. It is safe to say, that for at least five years the Mexican Railroad will pay enormous dividends, and for ten years will do a profitable business, after which the competing



FROM THE GULF TO THE TABLE LAND.

lines now in progress will reduce its income so that it will do no more than hold its own. By that time, however, it will have made up for all its losses in past years, and will manage, with its subsidy, to keep its rolling stock in order, its road in repair, and its stockholders in easy circumstances.

The railway backbone of Mexico, traversing the dorsal ridge of the plateau from the city of Mexico to the Rio Grande, is the Central, running northwardly from the capital, with branches right and left, to the Gulf of Mexico and the Pacific, and with feeders out to all important points.

The longest of any Mexican line, — direct, 1,225 miles, — it has also the largest subsidy, $9,500 per kilometre, amounting to about $32,000,000. It runs through a country rich in mineral and agricultural resources, and connects the largest centres of population in the south, although it crosses certain areas of sterile plains in the north.

The company was incorporated in 1880, under the General Railroad Laws of Massachusetts. "The capital stock is fixed

at $32,000 per mile ($20,000 per kilometre), according to the declaration of November 29, 1880; and the mortgage bonds and obligations shall not exceed an equal sum per mile, and these quantities shall not be increased without the previous consent of the Federal Executive of Mexico. The capital stock is divided into shares of the par value of $100 each, transferable upon the books of the company under such regulations as the General Board of Directors may prescribe." (By-Laws, Art. I.)

Its obligations were, that the line from Mexico to Leon should be finished by December 31, 1882 (completed in advance of time specified); that to the Pacific, within five years; to Paso del Norte, within eight years after completion of road from Mexico to Leon. A bond of $150,000 to be deposited with the government in the city of Mexico.

The history of this road, in connection with that of the Mexican (Vera Cruz) and that of the National (Palmer-Sullivan), well illustrates the advance of the railway movement in Mexico, after the initiatory attempt had so signally succeeded. The following statement is chiefly taken from the Report of the company, but has been verified in detail by the author of this work. This road was commenced in June, 1880, with a force of three hundred men, grading northwardly from the city of Mexico. The railway concession provides a subsidy of about $15,200 for each mile, "with the right to import materials for construction, repair, and operation for fifteen years, and exemption from all taxation for fifty years after the completion of all the lines, and authorizes the construction and operation for ninety-nine years of a telegraph line and of a standard-gauge railway from the city of Mexico, through the capitals and centres of population of the interior States, to Paso del Norte, and from any point on that line through Guadalajara to the Pacific coast." In addition, the company bought the Guanajuato Railway, the concessions made to the States of Chihuahua, Aguascalientes, and San Luis Potosi, besides obtaining another to the port of Tampico. "The subsidy is payable in certificates, in which merchants are compelled to pay eight per cent of all duties at the frontier and maritime custom-houses."

The Mexican Central runs through the centre of the table land, which already supports a population of nearly four million inhabitants. The following is a list of the cities upon the line, not including those of less than eight thousand inhabitants, with their population,[1] the State capitals being marked with stars.

*Aguascalientes	35,000
*Chihuahua	16,000
*Durango	28,000
*Guanajuato	63,000
*Guadalajara	93,875
*Mexico	260,000
*Queretaro	48,000
*San Luis Potosi	45,000
*Zacatecas	64,000
Paso del Norte	8,000
San Juan del Rio	11,000
Tula	10,000
Salamanca	19,450
Irapuato	21,311
Lagos	20,000
Celaya	30,000
Silao	38,000
Sayula	16,000
Tepic	14,000
Salvatierra	8,000
Leon	82,000
	930,636

In round numbers, probably a million.

The feasibility of this vast project has already been demonstrated, in the almost triumphal advance from the valley of Mexico to the valley of the Rio Grande. Of the region traversed Humboldt says: "So regular is the great plateau (formed exclusively by the broad, undulating, flattened crest of the Mexican Andes), and so gentle are the slopes where depressions occur, that the journey from Mexico to Santa Fé, New Mexico (about twelve hundred miles), might be performed in a four-wheeled vehicle. . . . . The two extremities, Mexico City and Santa Fé,

[1] Verified from the Anuario of Mexico for 1882.

are respectively 7,462 and 7,047 feet above the sea; but the elevation at El Paso del Norte is only 3,800 feet. The table lands of Chihuahua are from 4,000 to 5,000 feet."

Exceedingly rough hill and mountain work presents itself, first, in securing egress from the valley of Mexico itself, and again in the States of Guanajuato, Zacatecas, and Durango. Intervening between these ridges are broad valleys and immense plains, which offer few obstacles to the railway constructor of the present day. The region, throughout the entire distance traversed by the trunk line, is the healthiest in the world; but the coast termini of its Gulf and Pacific branches are in a climate not noted for its salubrity.

In the Statistics of the Republic of Mexico [1] for 1880, Señor Bárcena, a high Mexican authority, thus describes the route: —

"On leaving the city of Mexico, the road runs to the fertile valley of Tula, in which cereals are cultivated with great success, and to which come the agricultural productions of Ixmiquilpam, and of various warm regions found to the north of Mezquital, among the mountains of the State of Hidalgo. Here are also found various sorts of building and ornamental woods. On the road's advancing toward Queretaro it encounters the productions of the valleys of Huichipam, San Juan del Rio, etc., where are cultivated, on a very large scale, the grains which now come to the market of Mexico City. From Queretaro the road enters the Bajio, an extensive and rich region, where every year are raised enormous crops of cereals. In these regions are raised many irrigation crops, since there is an ample supply of water in the dry season, coming from the tanks on the plantations. Besides, subterranean water is found at little depth, which facilitates irrigation, and to this are due the vegetable gardens and the orchards of Leon and Salamanca.

"From Leon the road will pass on to Lagos, where will be found an abundance of wheat and other grains, coming from the valley of Lagos itself, and from those of Arandes, Atotonilco, Tecuan, etc. In following the general route, the road touches the important city of Lagos, and afterward San Juan, Jalos,

[1] *Estadistica de la Republica Mexicana*, Tomo II. pp. 442 *et seq.*

Tepatitlan, and Zapotlanejo, important towns, with good and varied agricultural productions. The connection with San Juan de los Lagos will be very favorable to the railroad at the period of the fair in that city, which is attended by the traders of near and distant districts.

PORT OF SAN BLAS.

"The advantages which will result from the railway reaching the city of Guadalajara need no argument, since it is the second city of the republic,—important by reason of its population of more than eighty thousand souls, its mercantile and industrial resources, and, still more, by reason of its position in regard to the Pacific ports.

"The concession gives the company liberty to select the terminus of the line, and thus it has an ample contour of coast to choose from. By selecting the port of San Blas for its Pacific terminus, the line will start westward from Guadalajara, profiting from the grains, sugars, coffee, brandy and mescal wine, etc., which are produced in its vicinity, as well as in the rich valley lands of Ameca, Ahualuco, Etzatlan, Tequila, and Magdalena. The road will pass

through the centre of a belt of fifteen leagues in average breadth, bounded by the Tololotlan and Ameca rivers. The agricultural production will be notably increased in this belt, so well suited to the culture of coffee, cotton, cane, and rice, and the rivers will be taken advantage of for the establishment of mills of various kinds. On the railway reaching Tepic, it will strike a town of considerable commercial importance, dealing in rich and abundant agricultural, mineral, and industrial products. . . . .

"We will now notice some of the mining centres on the line of the road. On reaching Tula (on the main line), the railroad can there receive the metals and ore which come from Actopan, Zimapan, the Cardinal, Jacala, and Encarnacion, as well as from the other mining districts of the northern region of the road. We have taken for granted that the mineral products of Pachuca, Real del Monte, El Chico, etc., will come to the city of Mexico, which will be the centre of deposit and export for the Mexican, the Central, the Construction Company's (Palmer and Sullivan), and the Southern railways.

"At San Juan del Rio the Central road will receive a great part of the mineral productions of the Sierra Gorda, while the mines of Las Aguas, El Doctor, Maconi, Jalpam, Rio Blanco, and others, will receive a powerful impulse. The Las Aguas mine abounds in argentiferous veins, as is also the case in the celebrated 'Doctor' mine, near which are found deposits of mercury and of anthracite coal. The whole of this region is an extensive mineral belt, which may be explored with the best results. To these productions must be added the excellent marbles of Vizarron, and the precious opals which are found so plentifully on the estate of Esperanza and in Amealco, at short distances from the line of the railway.

"On approaching Guanajuato the road enters a metalliferous region of great importance, which is being actively worked. From Salamanca will be exported the kaoline and the white clays of that region, or there will be established new porcelain works, whose products will circulate throughout the country, or be taken abroad. Leon will furnish as freight its valuable building and ornamental stones, which are interspersed with

yellow jaspers, presenting an appearance very similar to that of wood. At Lagos may be received the products of the Comanja and Sauceda mines, rich belts which may be worked on the largest scale. The product of the iron works at Comanja is of good quality, and will be largely shipped, and serve in the construction of railroads. To the north of Lagos is encountered the mercurial region of Puesto, and there are also some deposits of tin. From Guadalajara toward the Pacific are mining districts of much importance, near to the routes likely to be taken by the railway. Following the general direction now taken by the San Blas road are, at a short distance from Guadalajara, the mineral districts of Ameca and Etzatlan. Among the hills of the municipality of Ameca exist native gold, sulphurets of silver and copper, magnetic oxides, and hematites of iron. Etzatlan is a mineral district of importance, worked with more or less activity. Following the road toward Magdalena is found, at a little distance, the mine of Hostotipaquillo, and some isolated metalliferous deposits which have not been sufficiently explored. On reaching Tepic, a mineral belt of great value is touched, such as the deposits of Acuitalpico, La Yesca, etc., as well as those which have not been explored, and which must exist in abundance in the Cordilleras of Alica.

"Let us look now at the route the road must take to go to Paso del Norte. According to the concession, it will leave Leon, and must direct itself to Lagos, in order to touch a town whose importance we have already noted. The line goes northward through a productive grain belt, crosses the plains of Tecuan, in which are found rich country estates, whose irrigating facilities may be increased by the sinking of artesian wells, and arrives at the city of Aguascalientes, where there is a population of thirty-five thousand, devoted to agriculture and various industries. The road will continue on toward Zacatecas, crossing the valley of Aguascalientes. On these plains are cultivated the cereals, and in the western region, which is mountainous, are raised other products, and there are also to be had building and ornamental woods. From Zacatecas, famous for its rich mines, the road goes to Durango, a city

THE VALLEY OF TULA.

which it is proper the road should touch at, although not so stipulated in the concession. As the road goes northward it will traverse a rich agricultural region, principally in the State of Durango, where, on a great scale, are cultivated cotton, sugar-cane, and the cereals. The railroad will carry life and colonization to that section, which sadly lacks labor and means of communication. The same may be said of the plains which the road crosses until reaching Paso del Norte."

The foregoing has been quoted at length, not only as accurately descriptive of the country, but as the expression of a progressive Mexican, speaking for the more enlightened of his brethren. Though the Central nominally began work in June, 1880, little progress was made until late in that year; but by August, 1882, over four hundred miles of track had been laid, and surveys made for a large portion of the line. By obtaining permission to enter Mexico from the north, the management was enabled to push its construction trains from both ends, thus saving immense cost in freights, and long and vexatious delays.

On August 2, 1882, the first train crossed the Border, at El Paso, from the United States into Mexico. Progress over the desert plains was rapid, and by the middle of September, 1882, the road was completed to Chihuahua, the isolated northern capital of the great State of the same name, when twenty-five thousand people assembled at the celebration of this event, including some two thousand from the United States.

From the city of Mexico working northward, the advance has been even more rapid, owing to the accumulation of material and the incentive of rich regions to be opened up. After entering Tula, the ancient seat of Toltec empire, the engineers of the Central bent every energy towards gaining the populous centres beyond. Never halting in their triumphant progress northward, everywhere hailed with joyous acclamations, they successively reached and passed Queretaro, Celaya, and Silao, reaching at last, in November, 1882, the gate of Guanajuato, the capital city of a great mining State. This city, being intrenched among almost inaccessible hills, was connected with the trunk line by a branch, at the opening of which it was estimated that at least

eighty thousand people gathered to witness the arrival of the train from Mexico, with its freight of distinguished passengers. The festivities on this occasion were kept up for two days, and by night the city was brilliantly illuminated. The 1st of January, 1883, found the work advanced beyond the expectations of its most sanguine friends, and the entire State of Guanajuato spanned entirely by the iron road.

The year 1883 opened with over six hundred miles of road completed and in running order; viz. from El Paso southward to Chihuahua, two hundred and twenty-five miles, graded one hundred and twenty-five miles beyond; and from the city of Mexico to Lagos northward, about three hundred miles, and graded one hundred miles farther. On the Tampico branch, towards San Luis Potosi, about one hundred miles were completed, and on the Pacific branch, easterly from San Blas, about twenty miles. January 1, 1884, found over 1,050 miles of completed track, and in 1885 the trunk line was in successful operation throughout its entire length.

Next in sequence to be considered is the long narrow-gauge line known as the Mexican National, with a total length of about two thousand miles, and a subsidy of $11,270 per mile. It first runs westerly from the city of Mexico, to Manzanillo, on the Pacific, passing through the important cities of Toluca and Morelia. Shortly before reaching the latter large city, it sends its northern trunk up towards San Luis Potosi, crossing the Central at a point west of Queretaro, and entering the United States at Laredo, on the Rio Grande.

Connecting directly with the systems of Texas and the other Southern States, the National forms a short line from the capital to St. Louis and New York, over the Gould System for the former city, and over the great Pennsylvania Central for the East. The distance from Boston to the city of Mexico by this route is about three thousand miles.

It is built in pursuance of a decree of the Mexican Congress, and known as the "Palmer-Sullivan Concession," executed in September, 1880, for the construction of certain roads and tele-

graphs; first, from Mexico to the Pacific Ocean, "following the line that may prove most favorable for the mutual interests of the company and the nation"; second, from Mexico to the northern frontier; third, from Matamoras to Monterey; fourth, from Zacatecas to San Luis Potosi, and also to Lagos. Work was begun in September, 1880, and its progress, though not so rapid as that of the Central, has been marked. The total subsidies accruing from the various concessions will aggregate over $20,000,000.

The original concessions to this company were hampered by a great many conditions, the fulfilment of which created unnecessary expenses, and delayed the progress of the road. But early in 1883 the Mexican government combined all these conflicting concessions into one, and allowing a full limit of ten years, instead of eight as at first, for the completion of the entire system. It also increased the subsidy to an even $7,000 per kilometre, or $11,270 per mile, which is to be paid by six per cent of the customs duties received in all parts of the republic. The larger or more important centres reached by this road, with their populations, are: —

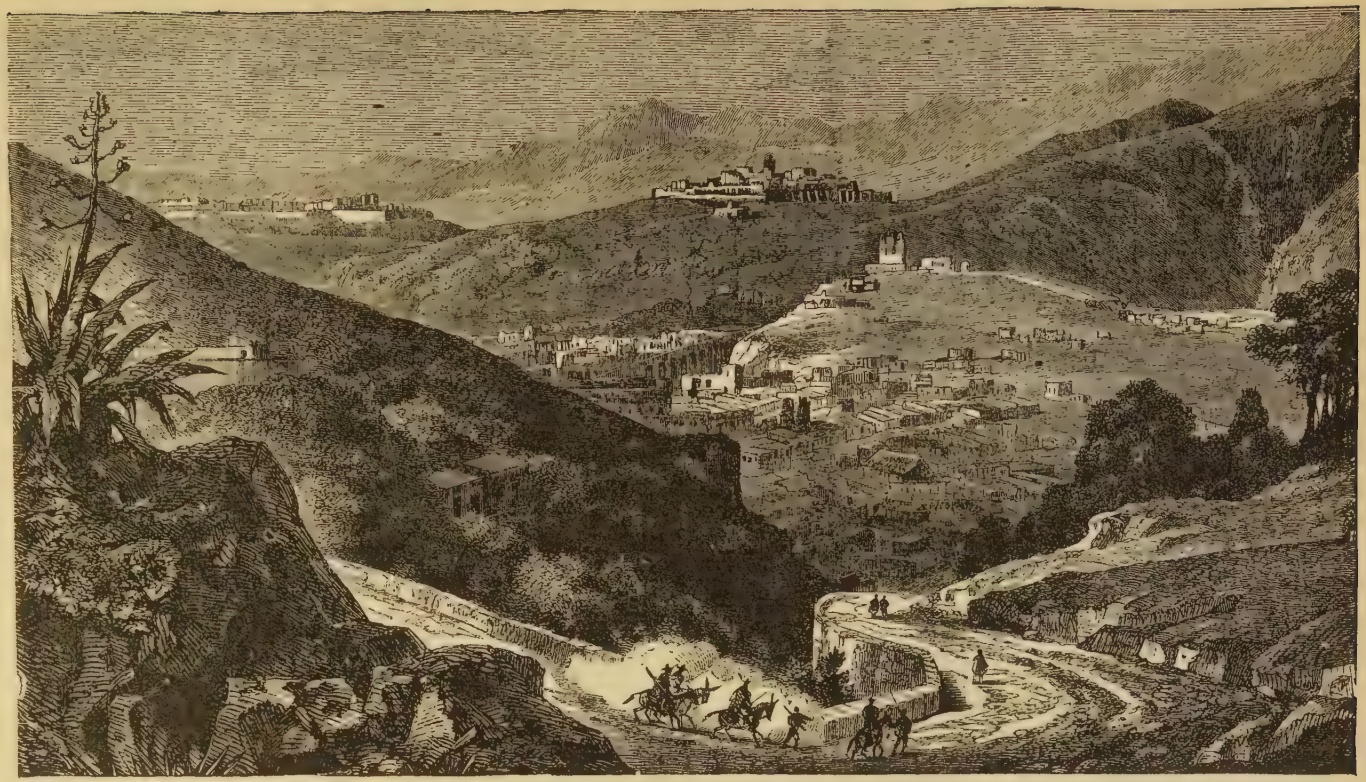
Monterey	42,000
Saltillo	17,000
San Luis Potosi	45,000
Maravatio	12,000
Acambaro	17,000
Toluca	12,000
Mexico	260,000
Morelia	25,000
Zamora	14,000
Zapotlan	20,000
Manzanillo	5,000
Colima	31,000
Guadalajara	93,000

The manager of this road, General Palmer, was one of the first to study the problem of railway connection between Mexico and the United States. The difficulties in the way of his

undertaking at first seemed insuperable, and they by no means diminished as the work progressed. The road was many months in penetrating the mountains between the city of Mexico and Toluca, and endured a great deal of ill-deserved abuse because it persisted so patiently in overcoming the most difficult obstacles at the outset. Its system of working in sections, at various isolated portions of the route, though at first discouraging, eventually proved the most rapid and satisfactory, especially as labor could be commanded that otherwise might not have been available. The road has long since passed the bounds of the valley of Mexico, and has pursued the same undeviating march of triumph as has been witnessed in the advance of the Central.

To illustrate the condition of the road during the first year of its existence, I introduce a description of the departure from the central office of the weekly pay train, which I accompanied.

First, there was a small cart, containing $10,000 in silver; this was loaded and placed in charge of a guard while the mules were laden. There were seven mules. Upon the back of each one was placed a coarse bag containing $2,000 in silver. This bag was about two feet long and one wide, and was lashed tightly to the pack-saddle. The sum of $6,000 was despatched to a point farther up the line by diligence. In all, $30,000 was sent out from the office to be distributed before night. As the cathedral clock struck six, the great doors were thrown open, and we sallied forth, — first a small guard, then the mules, then the cart, then ourselves. As we reached the Alameda the diligence passed us at speed, with its escort galloping behind; and here we were joined by our own escort of rural guards and employees of the company. The drivers kept the mules on the gallop all the way, past the aqueduct of San Cosme, to Tacuba, the cart with its silver burden betraying by its jingling the nature of its contents. We were there reduced to twenty-six men, including eight rural guards furnished by government, and twelve armed employees of the company. Each man of the escort was clad in leather jacket and pantaloons, and armed with carbine, sabre, and revolver, besides carrying coiled at the pommel of his saddle the inevitable lasso.



GUANAJUATO.

The guards rode ahead, then followed the seven silver-laden mules at a swift trot, which they kept up the whole distance, out and back, of fifty miles. A few miles out, after passing through great fields of maguey, over the muddiest of roads, between ditches white with the bloom of sagittaria, we reached San Estevan, where we again struck the track. A few miles beyond is Rio Hondo (the Deep River). Here we halted to pay away a few hundred dollars, then pursued our course again. At Rio Hondo is a large cotton and woollen mill, a model establishment, very large and complete. Ascending by a steep path to the barren table-land above, we had some eight miles of uninteresting road. Above Rio Hondo, which is twelve miles from Mexico, is the spot where poor Greenwood was murdered in 1880. He was an engineer in the employ of the company, who had gone out only a little in advance of his men, when he was shot, his murderers taking his horse, watch, and money. Though the Mexican government pretends to visit such villains with swift retribution, yet these murderers, though caught, have never suffered the penalty of their horrible crime. A cross marks the spot, one of many that adorn the road, over this long stretch of "bad lands."

On this road we were joined by a contractor, who soon left us, taking two mules with their loads of silver. The road-bed is out of sight from the plateau, as it follows the course of the Rio Hondo through deep cuts. Owing to the many cuts and bridges, work here is extremely difficult; there are twenty-six bridges in this section of three miles, and sixty between Mexico and Toluca. At a dismal village called San Bartolome, the laborers gathered about us, and one of the bags of silver was again opened, and a few hundred dollars paid out. Then we were in our saddles and off again.

Mr. Pritchard, the superintendent, had received intelligence that a party of bandits intended attacking the train somewhere along the route, and had with great difficulty secured the escort of rural guards from government. As it was, owing probably to our strong escort, we were not molested; but only the next day, a party of five, three on horses and two afoot, attacked and

robbed two engineers just above this point. This proves the accuracy of our information, and shows how uncertain is travel as yet in this region. San Franciscito, a small town twenty-five miles from Mexico, was our destination, and after dinner, with some engineers living in the company's house, we proceeded to pay the men. There were about a thousand of them, ranged in long rows in the streets, a motley crowd, clad only in cotton shirts and pantaloons, with a sarape added, or a cape of palm leaves. This cloak, called *capote de palma*, is much worn by the shepherds; it makes the wearer look like the roof of a thatched hut; but it turns the rain, and is cheap. The silver was counted out in piles upon a table, and each man paid as his name was called and checked upon a duplicate list. They were not allowed inside the room, of course, but took their money through a small aperture in the window, it being thrown into their hats, each man departing with a "*Gracias, señor.*" It took three hours to pay away about four thousand dollars, during which time the rain was falling in torrents. At four o'clock we mounted for our return trip of twenty-five miles, every man protected by his sarape, and by a rubber poncho that fell from his shoulders and covered his saddle and a good portion of his horse. The rain had swollen the rivers and the "bad lands" were slippery as soap, so that three of our party suffered severe falls, and the paymaster's horse fell upon him, inflicting such injuries as to confine him to his bed for a week afterward.

The section between Mexico and Toluca is probably the roughest on the whole line, being through the mountain wall around the valley of Anahuac, while the region is almost entirely worthless; but beyond is one of the most fertile valleys in the republic, where we find Toluca, a city doing much business, celebrated for its manufactures and its great trade with Mexico, and with a population of 11,000.

The road runs through the lovely valley of Lerma, tapping the mining region of Tlalpujahua and El Oro, and penetrating the renowned forest belt, which contains great supplies of lumber, more precious to Mexico than silver or gold.

Distant 134 miles from Mexico City is the town of Maravatio, with about 13,000 inhabitants, and 34 miles farther westward is Acámbaro, the southernmost town in Guanajuato, containing a population of 17,000. It is the point at which the trunk line turns sharply to the north, and runs directly to San Luis Potosi and Texas. It is distant from Manzanillo, the Pacific terminus of the road, 443 miles, and 60 miles westward is the small, though beautiful, city of Morelia. This westward route is not devoid of attractions, as it penetrates the only lake region of Central Mexico, reaches attractive Morelia and the towns of Tzintzuntzan and Patzcuaro, ancient seats of aboriginal civilization. Skirting the great and wonderful Lake Chapala, the line passes through Guadalajara, capital of the State of Jalisco, and thence runs southward to Colima and Manzanillo.

The 1st of January, 1883, saw the completion of 550 miles of the National Railroad. Monterey was reached in September, 1882, and the road opened to traffic from Laredo and Corpus Christi, Texas, the latter the Gulf port and terminus, 400 miles distant from Saltillo, capital of the State of Coahuila, which was entered in September, 1883.

From Mexico City northward, the line was open on January 1, 1883, to Acámbaro, distant 172 miles; track-laying was being rapidly pushed on the Pacific coast, and the completed line out from the capital, the El Salto branch, long since finished, in successful operation. The year 1884 opened with eight hundred and seventy-five miles of finished track on its main line and various branches.

Little has since been done on this road, and it has failed to realize the expectations of its projectors; especially since the withdrawal of the subsidies, — a loss which it shared in common with the Central and other lines.

A narrow-gauge railroad, crossing the country from Vera Cruz to Acapulco, was long ago projected, by way of Jalapa, Puebla, Mexico City, and Cuernavaca. This transcontinental line is continued westward from the capital by the Morelos Railroad, one of the very few enterprises purely Mexican in charac-

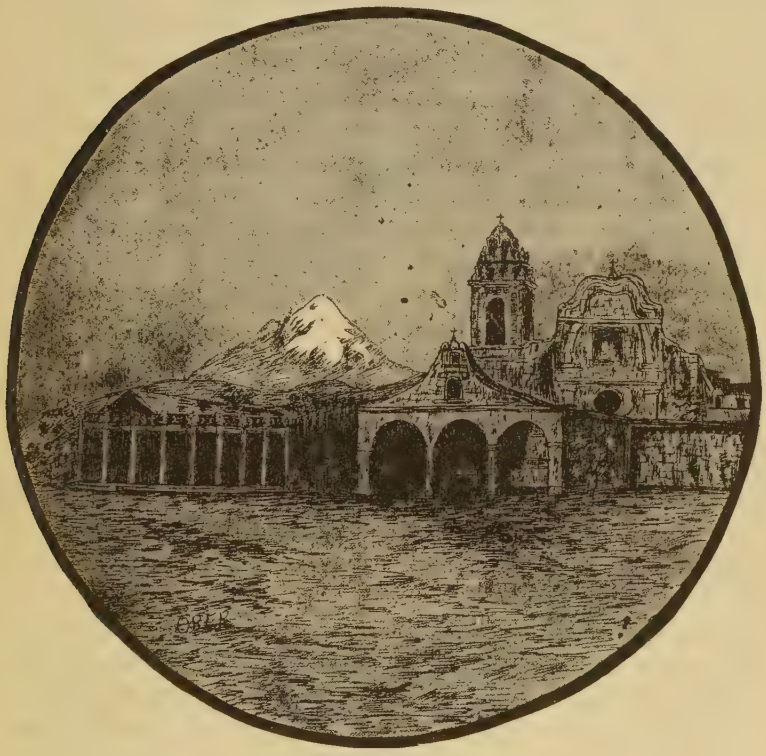
ter and controlled by energetic native capitalists. It runs at first parallel with the old road to Puebla, over which travel has rolled for centuries, and which, even in this age of steam, is crowded with the mules and donkeys of the freighters. Two daily trains leave the gate of San Lazaro for the South, composed of first, second, and third class cars, the fare being two cents per mile for the former, and less than one cent for the latter. At the hacienda of Los Reyes, composed of a few scattered adobe huts, a train connects for the ancient city of Tezcoco, and eventually for Puebla.

The scenery for the most part is dreary, but plains waving with grain, like those of Ameca and Ozumba, and the great volcanoes always in sight, especially from the latter place, make the route one of varied interest. Beyond the Mexican plateau, fifty miles from the capital, the road descends over a forbidding country, known as the *mal pais*, or "bad lands," fifty miles farther, to the town of Cuautla. This is a place of note, situated in *tierra caliente*, celebrated for its great sugar plantations and tropical fruits.

On the 18th of June, 1881, the Morelos road was formally opened to this point with a grand banquet, and an assembling here of nearly all the notables of Mexico. A week later a most terrible accident occurred at the barranca of Malpais, caused by the washing away of the foundations of a bridge, by which two hundred persons, principally soldiers, were precipitated down a ravine, and the cars, loaded with lime and rum, took fire, enveloping the victims in flames. Had that accident happened at the opening of the road, when President Gonzalez, Diaz, Romero, and most of the leading men of Mexico were there, the consequences to the republic would have been most disastrous. The whole work, with its sharp and numerous curves, and its insecure bridges, seemed to justify the boast of the native population (before the accident), that the engineer was a Mexican, and had never built a road before. The disaster proved a lesson to the American engineers, especially those who came first in the dry season, when all the ravines and *arroyos* are bare, and who realized that they must reside here through a rainy season or

two before they could fully understand the perils of a road from floods.

The Mexican manner of railroad building, I may remark in passing, is diametrically opposed to the American. First, you must get a "concession," — permission to build. Then you seek out some point far distant from any existing railroad, and



POPOCATAPETL FROM OZUMBA.

transport your material to that place. To begin at the coast would be contrary to Mexican tradition, and establish a damaging precedent. By beginning at the farther end of the line, you give employment to a great many carters and teamsters, which is but simple justice, as the road when built will certainly take away their freights. Realizing this, these aggrieved people make

their charges accordingly. This way of constructing a road will take more time and capital, but you will have the sympathies of the owners of mules and diligences, and the satisfaction of having offended nobody's pet theories and traditions. The road will approach completion so gradually that it will seem as though it had always existed, and by that time you may have the pleasure of renewing the portion first built, and of employing the descendants, even to the third generation, of your original workmen.

It was in this manner that the first railroad in Yucatan was built, and various others, and was originally insisted upon by the Mexican government in regard to the two great American roads. In making the road from Tampico to San Luis Potosi, for instance, material and rolling-stock were carted into the interior over tremendous hills, at a frightful expense, because the charter read "from San Luis to Tampico," instead of the reverse.

The Mexicans have not yet recovered from their surprise at the rapid manner in which the great American work goes on. They see engineers, some young and full of theories, others old and gray with service in Peru and Brazil, taken from the steamers and transformed in a week into hard-working bands, that fall into line and labor for the roads as though they possessed an individual interest in their completion. Each engineer of an advance party is furnished with a horse, a rifle, a revolver, and a peon, is lodged and fed at a hotel if in town, or comfortably cared for if in camp.

From this chapter the reader may gather the more important details of the vast railway movement of Mexico. It is estimated that, up to January, 1884, over $60,000,000 have been expended by American capitalists alone. The question naturally arises, Will they ever recover this vast amount of capital, or obtain for it a remunerative rate of interest?

That is a question which the future alone can answer. It is the writer's opinion that more roads are being built in Mexico than the country has need for, if it goes on developing for the next thousand years. Some have been blindly entered upon, without a counting of cost, or fair consideration of the regions to be traversed. Two great lines, with their various feeders and

branches, are all-sufficient for Mexico and for the extension southward of the vast systems of the United States. The success of a greater number I consider more than problematical, notwithstanding the promised assistance of subsidies and the support of the Mexican government.

It is true that these subsidies, if paid, will return to them a large proportion of the cost of construction; it is equally true that Mexican commerce — upon which these subventions are dependent — must increase at a rate wholly unprecedented to yield the required revenue. If there ever was an excuse for repeating a hackneyed Mexican phrase, it occurs here; and so I say, though with a reservation, *Quien sabe?* — Who knows?

Yet the vast and comprehensive railroad system of Mexico was not the child of chance, but was planned by her political leaders. They recognized the necessity of rapid communication between the centre of political power and distant provinces, both for the massing of troops to quell rebellions and the development of latent resources. So they subsidized and encouraged certain lines, even in the face of popular opposition.

With the Sonora Railroad crossing the extreme northwestern province, the Central taking the centre of the great plateau, the Huntington-Pierce combination (the "Sunset Route") the next tier of States, the National the next, and the Oriental the eastern border, we have Old Mexico divided longitudinally into as many portions as would seem advisable. Add to these the various feeders that span her from Gulf to Pacific, and lastly the Tehuantepec line that crosses her narrowest part, and we shall see that our Southern sister will soon be covered with a perfect network of iron rails and telegraph lines.

Not all these enumerated railroads have been completed, owing chiefly to the withdrawal of the fat subsidies promised by the government. Their end having been attained, the Mexicans, with notorious perfidy, withdrew all support to railroads which were being built in good faith.

XXII.

A RIDE THROUGH A MINING REGION.

"*MUCHO polvo*," said I to the driver of the diligence that took me from the station on the Mexican Railway towards Pachuca. *Mucho polvo*, literally translated, means "much dust."

"*Si, señor*," replied Jehu.

Our eight mules were in the best of spirits, and succeeded in raising such a cloud of dust as obscured the landscape for miles. I wished to remark upon the beauty of the scenery, but not recalling the proper Spanish words, and happy to find that the driver understood my comment, I said again, "*Mucho polvo*."

"*Si, señor*."

In ten minutes, there rested upon the face of nature such a pall of dust as it would take a deluge to remove again, but through it all our mules galloped gayly, flinging up fresh clouds at every leap, until it was so thick around me, that, had we been standing still, I am certain we should have been buried as in a snow-drift. As the driver could not select his route, those mules gave rein to their desire to torture us as much as possible, and if there existed in that road a rock or rut that we did not go over or into, it was only because those animals could not find it. By way of varying the monotony of things I said to the driver, in a voice husky with dust, "*Moo-moo-cho pol-pol-vo*."

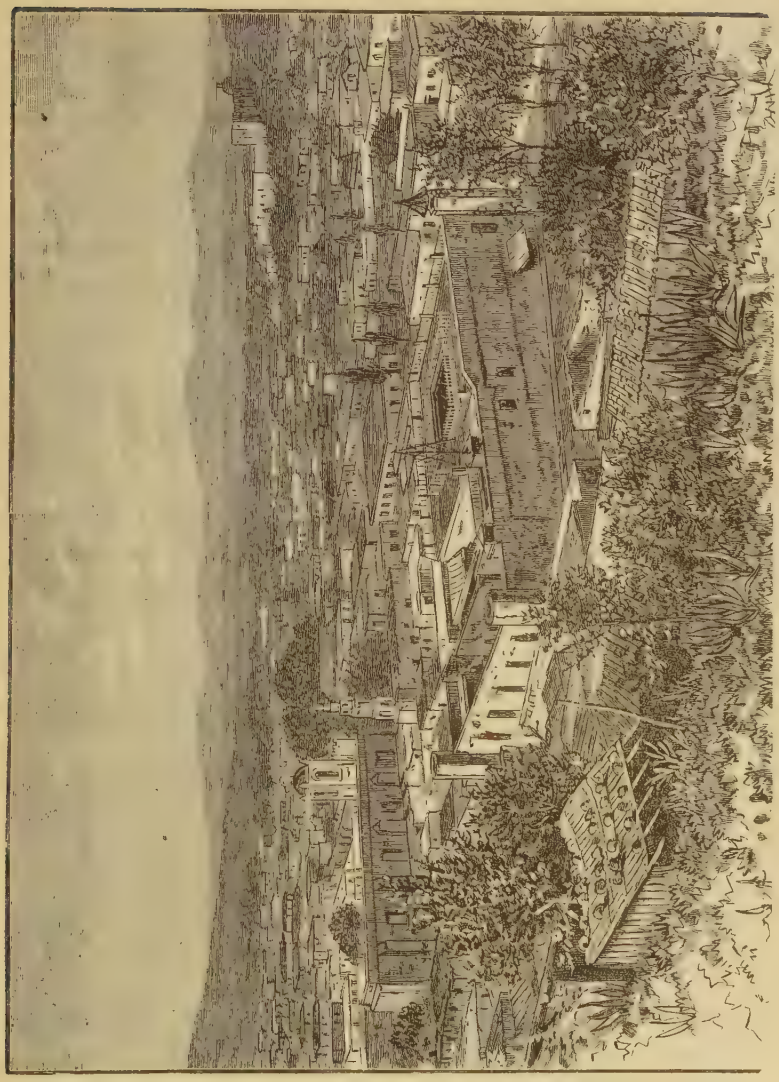
The motion of the coach prevented me from giving, perhaps, the correct Castilian pronunciation, as one minute I was clinging to the hand-rail at his side, the next over amongst the baggage in the rear, and again down somewhere in the region of the mules; but he understood me perfectly, — he was a very intelligent Mexican, — and replied promptly, "*Si, señor*."

In about an hour and twenty minutes after leaving the station the diligence suddenly pulled up at Xochihuacan. If the reason why we halted here is not evident at a glance, I may explain that we needed time to pronounce this Aztec name, not being able to get around it in our then exhausted condition. We hailed it with light hearts, but with heavy stomachs; for we had inside us an amount of disintegrated Mexican earth that would have entitled us to honorable distinction among the clay-eaters of the Orinoco. We took breakfast that morning at a thriving settlement of one house and a mule-shed, known as Tepa, where we were first introduced to the pulque of that region. As it was made on an adjacent hacienda, and was the best in the county, we essayed a drink, clasped our noses, breathed a prayer to the Virgin of the Remedios, — the patron saint of pulque-drinkers, — and gulped it down. Having thus washed the dust from our throats into our stomachs, we started on again.

Northeast of the city of Mexico is a cluster of the richest States in the republic, consisting of Guanajuato, Queretaro, and Hidalgo, the mining centre of the last being Pachuca. It lies on a plain about sixty miles from Mexico City, — a plain covered with maguey plants and environed by the same purple hills that surround the capital, over which peers the wonderful *Montaña de los Organos*, or Organ Mountain, of Actopan. Enclosed within a semicircle of bare brown hills, by which it is hidden till nearly approached, Pachuca fills a little valley with low-walled houses of stone. It has a population of about twenty-five thousand, the great bulk of which are Indian miners. It is, with Tasco, the oldest mining district in Mexico, and it is supposed that the first Spanish settlement was founded near here. Its mines have been worked for over three hundred and fifty years, and here in this very town was discovered the process of amalgamation, in use to-day, by which all the ores dug from the mountain are made to yield up the silver they contain. Yes, more, the very *hacienda* is still at work, and profitably, in which, in 1557, Señor Medina made that discovery so valuable to Mexico. Señor Medina has passed away, it is presumed,

but his memory still lives, and it deserves to be perpetuated by a monument of silver at least a hundred feet high.

Besides the native population there is an English colony, comprising about three hundred and fifty men, women, and children, from the mining district of Cornwall. The first Cornish miners came here about sixty years ago, introducing English machinery and modes of working. More than half a century ago, England was afflicted with an "Anglo-Spanish" mining fever, which did not abate till more than $50,000,000 of English capital had been expended in Mexico. During the prevalence of that fever many of these miners came out here. Some of the original number are still living, and all agree as to the healthfulness of the climate of this region as a place of residence for English people. Though some of them had acquired wealth, and some had retired to Old England with enough and to spare, the majority had earned little more than a living, until they "struck it rich" in the Santa Gertrudis mine, which is now "in bonanza." It had been successively worked and abandoned years and years ago, and was finally "denounced" — or taken to work — by a Cornishman. Forming a small company, in 1877, he commenced active work; after it was proved that the mine was paying, he sold his share, nine twenty-fifths, for $15,000. Since then, one twenty-fifth has sold for $80,000, the present price being $85,000 or $90,000 per *barra*, or share. The mine has been "in bonanza" now for five years, and is yielding about 3,000 cargas of 300 pounds each of metal weekly, and giving a clear profit of $1,000 per day. From June, 1877, to March, 1881, the mine produced $2,300,000, and declared thirty-two dividends of $20,000 each, — $640,000. In June, 1877, there was but one shaft of sixty varas, — a vara is little less than a yard; now, the deepest shaft is two hundred varas; there are powerful pumping and hoisting engines, many large buildings, and all the appurtenances of a mine in this section, all paid for. This mine, which is located less than two miles from the centre of Pachuca, is owned principally by men who were poor at the time they commenced to work it. There are, it is said, two distinct lodes, running parallel, and at



PACHUCA.

less than fifty yards from each other. At first the vein worked was only a vara wide, but, as they went down, they found a cavern filled with "metallic mush," twenty-four feet wide. They were at first compelled to timber around a great deal, for

the sake of economy, taking out merely enough to meet current expenses. What remained was "pure black sulphurets, which exhumed globules of native silver when exposed to fire." One can trace the silver lode as it crops out above the surface, and runs diagonally across the hills.

The gross product of Santa Gertrudis in the first four years sums up $4,000,000, although yet new, and more than $2,000,000 has been divided in profits. The ores of this district vary from $20 to $300 per ton, with frequent deposits up to $500; $60 per ton is considered sufficient to put a mine in bonanza.

In Pachuca and the mining districts around it — Real del Monte to the northeast, El Chico to the north, and Santa Rosa to the west — are in all 267 mines, as follows: in Pachuca, 154; Real del Monte, 76; El Chico, 24; and in Santa Rosa, 13. The prevailing metal is sulphate of silver, though in some mines native silver is found mixed with the ore. The ores are "docile," and reduced by the barrel process, smelting-pan, amalgamation, and "patio" process. There are but two States that equal Hidalgo in yield of silver. Most of the mines are operated in the old Mexican fashion, the metal being brought up in bullock-skins, by means of long ropes of maguey fibre wound about a large drum, worked by horses or mules.

The accounts of the yields of some of these mines border upon the fabulous, yet it is more likely that they have been under rather than over estimated. Under the old Spanish laws, one fifth went to the king, and under the present laws one twenty-fifth belongs to the government, and by examining the books in which these accounts are kept, one may quickly ascertain the production of any mine. In the archives of Mexico you may find the musty volumes containing these records, some of them over three hundred years old. By them it appears that *one hundred million dollars* has been taken from a single mine, the Rosario, in thirty years, and the books show that there has been paid $500,000 per share in dividends.

On our way through the street leading to the gorge at the head of the valley where this mine is located, we passed the

headquarters of the Real del Monte company, which works the greatest number of mines in this district. Its building is a perfect fortress, built, like all Mexican houses of the better class, with stone walls, square, and surrounding an open court in the centre, into which all the rooms look; but flanked at every corner with towers, loopholed and slit for musketry. When I first saw this structure I did not understand the full significance of those towers, supposing that they were added for ornament; but I subsequently learned that they were made for a purpose, and that many a man has been shot from them. Bullet-holes may yet be seen in the walls, though many have been effaced by mortar and paint. It is only eight or nine years since this castle withstood the attack of a horde of bandits. As related by an eyewitness, the affair was something like this. There was a large quantity of silver stored in the vaults of the building; for all the treasure of the various mines is first collected here, and then sent, in steel wagons, well guarded, to the mint in Mexico. It was, I think, in revolutionary times, and the country was overrun with lawless men, who collected in Pachuca in great numbers. The commander of the little army maintained by this great company had two hundred picked men. Leaving a small guard in the castle, he returned to Real del Monte, two leagues distant, there formed and collected his forces, and then marched again upon Pachuca. Soon as the guard within the fort saw their comrades appear upon the hill-tops, they opened fire upon the rascals outside, while the commandant charged through the narrow streets, with great slaughter.

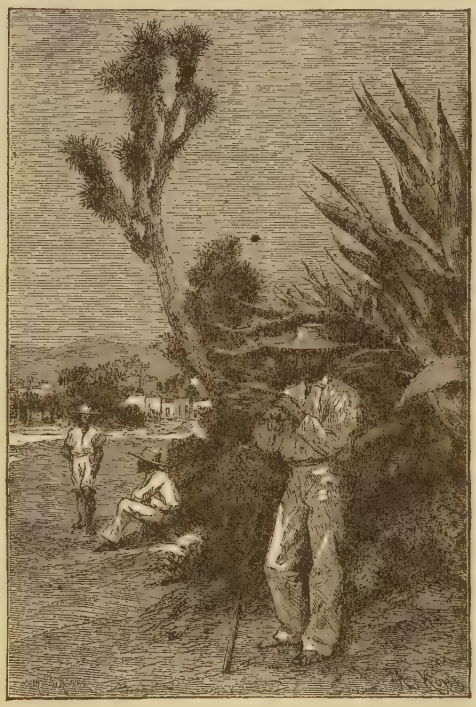
The few windows opening on the street are defended by iron bars, and the massive doors are guarded by men armed with rifle and revolver. Above this are the extensive mills and works, called *haciendas*, of the company, and the *apartado*, an immense establishment, in which the silver is assayed and the residue of gold extracted after the silver has been run into bricks. Here everything needful is made, even to the sulphuric acid used in the operation. The sulphur comes from Sicily, though old Popocatapetl has a vast store yet in his vitals; and the quick-

silver from Austria, though there are mines of it south of the capital.

Entering the great gate, — for all the mines and works are surrounded by high stone walls, — we procured candles of the keeper at the mouth, and plunged into the dark tunnel of an "adit." There was a track over which the cars were drawn which carry the ore out from the shafts, but they were not then running, and so we walked the whole distance of five hundred varas, — nearly a quarter of a mile. At the end of the adit, in an uncanny hole, into which we climbed with difficulty, was a large steam-engine, puffing and sizzling, and rendering the place so hot that the remark was made that the engineer, if he went below when he died, would need an overcoat. These hills are honeycombed with shafts and adits; some of them, connecting with those of other mines, lead under the mountains a league. We passed over two shafts, each fifteen hundred feet deep, from which the miners were pouring, like flies out of the bunghole of a sugar cask. Probably over twelve hundred men are employed in this mine alone. They get, as wages, from six to ten reales per day, and one bag of ore out of every eight they break. The ore is sent up in small coarse bags, each one with the miner's mark on it, and dumped into small iron cars when it reaches the adit, and drawn out by mules.

When we had emerged into open air, the manager took me to the office and gave me some very rich specimens of ore, some containing native silver, and these, with others obtained later, made a most excellent series for cabinet and laboratory use. Most of them were obtained from the men as they came out of the mine. Each gang works twelve hours, and the work goes on night and day, without cessation, the month through. As the men come out of the mine and pass through the gate, they are searched — three times in all — for silver ore; yet they often manage to carry away a great deal in the course of a month, which they dispose of to the small haciendas in town, which "beneficiate" on their own account. Their methods of concealment are various and artful. One was to hollow the handles of their hammers, which they were permitted to carry out of the

mines with them, and fill them full of ore; another, to pulverize the ore and roll it up in cigarette papers; another, to have it in little bags, so arranged with strings that they could change it from side to side, under their loose shirts, or sarapes, when the keeper was passing his hands over them. They conceal it between their toes, in their ears, and in the last places one would think of; their scanty clothing offers no aid to hiding. In the Rosario is an old shaft four hundred feet in length, leading from the top of a hill into the mine; it was long since abandoned, and is now used as a chimney for one of the engines in the mines. For a long time great quantities of ore were missing. The paid agents of the company reported that stealing was going on, but could not tell how. At last it was discovered that an adit had been driven into the hill to the old shaft, and up this dangerous place they had climbed at night, dragging the bags of ore after them. An exploring party was sent in and found a dead man and some provisions, the man suffocated by the smoke.



MEXICAN MINERS.

"If the superintendent," says a certain writer, "should roast the parish priest in front of the oxidizing furnace, till he confessed all he knew about the thefts of his parishioners from the company, he would tell strange stories; — how Juan Fernandez

carried off sixpennyworth of silver in each ear every day for a month; and how Pedro Alvarado (the Indian names have almost disappeared except in a few families, and Spanish names have been substituted) had a hammer with a hollow handle, like the stick that Sancho Panza delivered his famous judgment about, and carried away silver in it every day when he left work; and how Vasco Nuñez stole the iron key from the gate (which it cost two dollars to replace), walking twenty miles and losing a day's work in order to sell it, and eventually getting but twopence for it; and plenty more stories of the same kind."

This mine well illustrates the uncertainty attending all mining operations. Before the present company got control of it, two others had it, the last of which stopped within forty feet of the lode that has yielded millions. It was the making of Pachuca, the cause of its being created capital of the State, and floated the company through a long series of years, in which its other mines were being worked at a loss. Since the opening of this the mine of Guatemotzin has given up millions of dollars. The ore extracted in the district is about twelve thousand cargas, of three hundred pounds, per week, and the wages paid the laborers, miners, muleteers, teamsters, etc. amount to more than forty thousand dollars weekly. It may seem hardly credible, but nearly the whole of this large sum is spent every Saturday; by Sunday night hardly a miner has a copper remaining. He spends it in pulque, mainly, and such things as profit him nothing. When well filled with pulque he is very valiant; hardly a day passes that some one is not killed or wounded, and on Sundays grim death reaps a harvest.

In the summer of 1881, the inhabitants of Mexico were electrified by the news that an old mine, which had been neglected for one hundred years or more, had been found in bonanza. This mine was owned by the Condé de Regla, who employed two hundred slaves at work there, it is said, chained together. They were never allowed to see the light, after having entered the horrible pit, and finally, despairing of escape, they set the woodwork of the mine on fire, and all perished. The mine has not been worked since until recently, as it filled with water.

Now, the workmen are discovering old tools, skulls, and skeletons, and what is better, — silver. There are many of these abandoned mines, from which the Spaniards were driven during the revolution of 1821, that were yielding their millions. Becoming filled with water, and the Mexicans being unable to clear them out with their inadequate and primitive machinery, they have remained unworked to the present day. The reopening of these valuable deposits of silver has been the favorite project of Mexican miners for nearly half a century; but very little has been accomplished, owing to the amount of capital necessary for the purchase of improved pumping apparatus, material for the timbering of the shafts, and hoisting machinery.

Scattered over the brown hillside above Pachuca, gleaming white, like monuments in a country graveyard, are round pillars of stone, two feet in diameter and five in height. They are the landmarks, or corner-posts, that define the locations of the mines. In locating a mine in this country, the first thing, naturally, is to find a lode; then one person may take up two claims six hundred feet long by three hundred wide, each; two persons can take up double this amount, but no greater location than the latter can be made by one company on the same lode continuously. The width of the location may be amplified according to the dip of the lode. For example, if the dip of the lode be very shallow, the width may be doubled to four hundred metres. The petition for location of a new lode, duly filed in the mining archives, guarantees the *prima facie* right to final possession upon fulfilling certain conditions; namely, the sinking of a shaft of ten or more metres, or running the same distance in a tunnel on that which shall be declared a metal-bearing vein, no legal objections appearing. If objection is made by owners of adjacent mines, or other persons, the matter is heard and determined by the "board," or sent to the courts.

The mining laws of Mexico have been handed down, with few amendments, from the crown laws of Spain. The system is simple, and eminently practical. "Under the operation of this national code, mining boards are established in all localities where mines exist. The board is composed of three members,

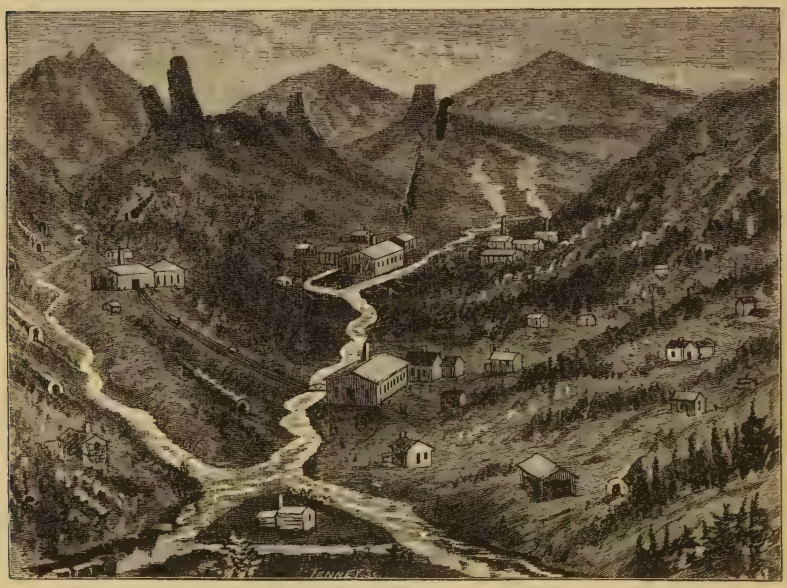
one being elected each year by the votes of mine-owners only. The oldest member is president, another the secretary. The board possesses quasi-judicial powers for adjudicating disputed questions, although appeal to the courts may be taken in cases involving interpretations of law. One of the board, with the consent of another member, personally gives formal possession of new locations, or relocations of abandoned mines. The report of the engineer, with a map, is deposited with the board, and, if no objection is made, the formal possession is at once determined on. The fee of the engineer is $20 for every hundred metres. The fee for filing declaratory intention to locate is $4.50, and a government stamp of $1. The fee to the board in granting possession varies from $60 to $80, discretionary with the officiating member. The requirements of the Mexican mining laws simply relate to the width and breadth of the shaft, timbering, and other mediums of safety. They are no more stringent than the intelligent mining superintendent would naturally observe in managing his own property. Work is required to be performed for a continuous period of four months, at the expiration of which an additional four months without work is allowed.[1] The land-owner still retains his right to the geographical surface, except so much as is needed by the mine proprietors for their buildings, etc. In case he so requires, the land-owner is paid a small sum for his property, by mutual agreement. Should a dispute arise, it is immediately referred to arbitration for final settlement. In the State of Hidalgo all mines, regardless of extent, are by law divided into twenty-five parts, called *barras*, one of which belongs to the State, unassessable. This free barra is supposed to be in lieu of taxation. At the option of the owners, a further subdivision is made, called *bonos*, which substantially represents the shares. In speaking of the value of ores in this country, it is customary

[1] "The title to the soil of Mexico carries no title to the gold and silver mineral that may be contained in the land. The precious metals are not only regarded in law as treasure-trove, but they carry with them to the lucky discoverer the right to enter upon another person's land, and to appropriate so much of the land as is necessary to avail himself of the prize." — R. A. Wilson.

to state the number of *marcos* (a marco is about $8.85) to the *monton*, three thousand pounds. In locating mining property, an alien enjoys the same rights and privileges as a native."

The stronghold of the silver king, or of the "company," is at Real del Monte, two leagues from Pachuca, and several hundred feet higher. Here the little village is mined beneath all its area, and the hills about are full of tunnels, shafts, and adits. In going there you hire a horse and a *mozo* (a servant), and strike up and over the hills toward the east. As you mount higher and higher, and the road winds in and out, now at the base of a precipice, now at the top of another, now topping a deep ravine, now crossing a bridge, yet always climbing, you look down upon and over a glorious sweep of hill and valley; far down below is the Pachuca plain, covered with growing crops of barley, maguey, and wheat; in town, the most conspicuous objects are the bull-ring, the cathedral, the new theatre, and the old convent of San Juan de Dios. Many a mile of hill and plain are spread out before us, alternately claiming attention, till the outermost circle of all is reached, blue, dim, misty, above which, full ninety miles away, grand, majestic old Popocatapetl thrusts his pointed helmet, crowned with perpetual snow, through clouds of silvery, dazzling white. At the summit of the ridge, descending the eastern slope, is a beautiful grove of Mexican oaks, crowning an oval hill, each tree a mound of verdure. Descending the hills, you come to others, upon and among which Real del Monte is built; far beyond may be seen some curiously formed rocks of immense size, called the *Peñas Cargadas*, or "Loaded Rocks." It was here that the English Real del Monte Company took possession of the mines whence the Count of Regla extracted his great wealth, and, through reckless expenditure, managed to absorb $20,000,000, of capital, sent out to them from England, in twenty-five years. From this they realized but $16,000,000, "and the present proprietors enjoy the fruits of their labors at a cost of less than a million, with a fair prospect of realizing as large a treasure as that acquired by the first Count of Regla. This is one of the most extensive mines in the world, where an average of five

thousand men and unnumbered animals are employed." The foregoing statement was written twenty-five years ago, and so far as prospective wealth is concerned might be repeated to-day, for the old mines seem yet unexhausted, and the company is still prosecuting its labors with great vigor. One can scarcely comprehend the inexhaustible nature of these veins, some of which have been worked *three centuries and a half*, and, after glutting all their possessors with precious metal, still beckon



A MINING REGION.

on to perhaps yet greater deposits, though they have already been followed for miles. It seems as though the expression "silver hills" has more than a figurative meaning, and that the entire backbone of the republic is of silver, with ribs of that metal and of gold extending deep into the bowels of the earth.

Leaving behind us this centre of ancient enterprise, situated, according to Humboldt, nine thousand feet above the sea, we took the road leading to Regla. It was crowded with mules and don-

keys laden with sacks of ore, going from Pachuca to the smelting establishments of Regla and San Miguel, and we had great difficulty in getting through them. There was not a bridle or rein amongst the whole lot of about sixty, yet they all kept together, guided by a peon and two men in leather jackets and breeches, who were almost covered up with arms of all kinds.

The Hacienda de Regla,[1] which we reached about noon, is seven leagues from Pachuca, the termination of the road; it is a heterogeneous collection of buildings, crowded into a mighty gorge, which is walled across. In describing this, the strongest of those silver works erected in the last century, I scarcely know how to approach it; stupendous works of nature vie with massive buildings erected by man, either one of which would arrest the attention of a tourist in any land. But let us examine the natural formation first, even as we would learn the general outline of the world's map before man's advent upon it. Here is the Giant's Causeway of America, as the late Bishop Haven called it. "It is worth a journey of a thousand miles to see the Barranca Grande and the Regla Palisades." The name is an exaggeration, even as are most of his descriptions and narrations, yet there is here material enough to warrant a comparison, and no mean one either. Here is a basaltic formation grander, perhaps, than any the United States can boast. Here are cliffs one hundred and fifty feet high, enclosing a basin deep and wide. Immense basaltic columns, perpendicular ranges of rock pillars, rise high above our heads, and from a deep gap, at the head of the gorge, a stream of water rushes out, — an immense volume, — which takes a leap of forty feet or more, and plunges into a rocky basin. It is a most striking picture, this foaming, roaring avalanche of milk-white water, suddenly projected into view from a deep black chasm, and precipitated into this rock-ribbed ravine. In one place the great columns are crowded out, as though by the superincumbent weight of earth

[1] It occurs to me that the term *hacienda* needs explanation. It puzzled me at first, for I thought the name only applied to a great farm, but it seems there are *haciendas del campo*, or farms, and *haciendas de las minas*, or mills; as in other places I have found *ranchos*, or small farms for cattle, and *ranchos* which were merely wood camps.

and rocks above them, or as if the giant that fashioned them had bent them outward from the perpendicular face-line of the cliffs when in a state of fusion. They present a mass of hexagonal rocks, showing well the shape of these massive columns.

THE CASCADE OF REGLA.

The bed of the river that flows down toward the barranca is paved with these hexagonal and pentagonal blocks; an old aqueduct leads from the basin to the mills, forming a double arch as it leaps over the river-bed and enters the wall surround-

ing the works. The organ cactus grins out of the rocks, and great yucca-leaved trees with pendent bunches of snow-white flowers hang above the buildings.

What an indomitable spirit was that of the man who built these works, — Peter Terreros, the first Count of Regla. It is estimated that he expended $2,500,000 upon the buildings constituting this refining establishment, sunk in this barranca, below the level of the table land. Right here, on the scene of his labors, let us recall who and what he was. As authority, I will quote from a writer of a quarter of a century ago, who repeats what was known and confirmed by Humboldt sixty years before. "In olden times the water in the Real del Monte mines had been lifted out of the Santa Brigeda and other shafts in bull-hides carried upon a windlass. . . . . But after a certain depth had been reached, the head of water could no longer be kept down by this process, and, in consequence, the Real del Monte was abandoned, about the beginning of the last century, and became a perfect ruin. Peter Terreros, then a man of limited means, conceived the idea of draining this abandoned mine by means of a tunnel or adit (*socabon*) through the rock, one mile and a quarter in length, till he should strike the Santa Brigeda shaft. From 1750 to 1762, he toiled until he reached the shaft, and also a bonanza, which continued for twelve years to yield an amount of silver that in our day appears fabulous. The veins which he struck from time to time in the tunnel kept the enterprise alive. His bonanza not only furnished the means for refitting and clearing out the old shaft, but from his surplus profits he laid out half a million dollars annually in the purchase of plantations, or six million dollars in the twelve years, equal to about five hundred thousand pounds' weight of silver. Besides, he loaned the king a million dollars, which has never been repaid, and built and equipped two ships of the line and gave them to his sovereign. He was then created (this muleteer and illiterate shopkeeper) Count of Regla. When his children were baptized, the procession walked upon bars of silver. He assured the king that, if he would visit him, wherever he walked it should be *upon silver bars*, and that his apartments should be lined with that precious metal."

This hacienda was established by the Condé de Regla over one hundred years ago, and the reason for having the reduction works so far from the mines is that there is an abundance of water here, and little there. It is said that he employed slaves in this hacienda, as in his mines, and kept them in caverns in the cliffs.

Directly in front of the church is the *patio*, court or yard, in which is carried on the operation of mixing, kneading, and amalgamating the silver ore, called the "Patio process." It is the oldest Mexican system of extracting silver from its ore, and in substance the only one tolerated. The ore is brought here from the mines, on the backs of mules and *burros*, and in great carts, crushed into pieces the size of a walnut, and then further crushed and triturated beneath heavy blocks of basalt, whirled about in a circular basin, called an *arrastre*, by water-power. The comminuted ore is then run out into the patio, where it is spread out in great mud pies, and this mud, mixed with salt, quicksilver, and copperas, is trodden and thoroughly kneaded by droves of horses being driven through it a certain number of hours daily,—a custom introduced from Peru in 1733. The establishment has over two hundred horses and mules, and when I arrived six groups of twenty-four horses each were at work on different beds in the patio. They are tied together by a long line, which a man who stands in the centre holds in his hand, and compelled to travel round and round during eight long hours. When they leave the valuable deposit they are covered with precious mud, which is washed from them in a large tank. Further mixing with chemicals, washings, and triturations, are necessary before the final process of volatilization and running into bars, each and every one requiring watchful care and skill sharpened by long experience. The process is wasteful in the extreme, about twenty per cent, it is calculated, probably remaining in the residuum. The cost of reducing ores in this manner varies from twenty to twenty-five dollars per ton; consequently, ores yielding less than thirty dollars per ton are not generally worked.

It was worth a week's journey to look upon these mighty

palisades, and that night, when the moon came up and filled the great gap with mellow light, the view could not be recompensed by a month of ordinary scenes. Next morning I climbed the hill, above the compact castle and town, through a miserable village, with one street that led upward, and full of rocks and stones that had a tendency to send you downward. But the mozo said it was a *buen camino*, a good road; though a mozo always calls any road good that has holes in it less than four feet deep, and rocks you can climb over without a ladder. After a time we attained the table land again, from which we had descended into the gorge the day before. This portion is a great plain, thickly peppered with stones from some volcano, and in the distance are clumps of cedar and acacia, with here and there an oak. The air is fragrant with cedar odors, and the pastures might be those of the Massachusetts hills, but for the maguey along the walls.

And what am I going to see? A *barranca*. And a barranca is — a hole in the ground, a ravine lengthened out, and spread apart, and deepened, until it has ceased to be a ravine, or a gorge, or even a cañon, but becomes a barranca. And this is the Barranca Grande, the largest one in the State, and perhaps in the country, miles across, and with walls twenty-five hundred feet deep, or high, according to whether you stand at top or bottom. The mozo leads the way to the brink of a precipice, and I look down into the barranca of the river from Regla. Steep walls of rock are under my feet, at the base of which is the accumulated detritus of centuries, sloping to the bottom, where a river meanders through groves of trees and green-carpeted alluvium. It must be a large river, though it looks a mere silver thread, and its roaring can be heard here, two thousand feet above it. Riding still farther on a couple of miles, over stone-strewn hills, I reached the highest prominence on the plateau, between the Regla barranca and one still grander, into which its river empties. Below me stretched the great barranca, pursuing a serpentine course from north to south, a broad vale of green, divided into fields and gardens, with dark green mango and orange trees shading a most luxuriant vegetation, and a

river running through its centre, here dark and quiet, there foaming over shallows. Brown earth, without a stone appearing in it, indicated fresh cultivation, and little thatched huts, upon various spurs and elevations, told where the cultivators lived. A happy valley this deep-sunken barranca-bottom appears to be; but doubtless there are drawbacks to a perfect state of existence here; the river is not always so quiet, and sometimes rushes up the hillsides and tears away these homes so humble; and as to getting there, if the delight of being secluded is great, the difficulties surrounding it are greater, for the roads leading down from the outer world are long and tortuous, steep and dangerous, scarcely passable even for mules. The principal plant up here is a prickly-pear, growing up like a tree, with red flowers, and the aloe; about them hover butterflies and humming-birds.

A MOZO.

While I wrote these notes my mozo went to sleep under a cactus, on a contiguous hill, and the horse dozed by his side. I like these mozos; they are honest and faithful. In the number I have employed, I have not found a faithless one. And then they are so humble; they will hardly address you without touching their hats, and are very grateful for a kindness. Poor fellows! they get little enough of it here. This one had trotted by my side for several miles, and when I gave him a piece of silver he could not understand why I should do so; it was only two reales, yet he was so profuse in his thanks that I galloped away from him to escape them. In returning over the plain he sought out for me some specimens of obsidian, — the volcanic vitreous stone from which the Aztecs used to make their spears, knives, and arrow-heads. It is very plentiful here, and in the hills between these plains and Pachuca there are indications of extensive mines by the Aztecs for the purpose of getting this valuable product, the *itzli*, which

stood them in the place of iron and steel. This region of quarries is known as the Mountain of Knives, — *el Cerro de las Navajas.*

San Miguel is the name of the other beneficiating hacienda belonging to the Real del Monte Company; it is about two miles south of the cascade, and the most delightful in the silver region. Intending to stay there but an hour, I was induced to remain three days. Learning that I had sent my effects on to Pachuca together with my camera and gun, the *administrador* sent a peon for them to that point, a distance of twenty miles. When I returned to Pachuca, that same peon went with me and carried them back, making in all eighty miles on foot; yet, when I made him a present of but a dollar, he returned me a thousand thanks, — "*Mil gracias, señor,*" — and went away delighted.

Señor Anda, the administrador, was a graduate of the School of Mines in Mexico, — which has sent out so many finished engineers, — a commissioner to our Centennial Exhibition, where he received honorable mention, and is now the head of a hacienda requiring skill and education to manage.

In this mill they use a different process from that of Regla, called the "Saxony," of roasting the ore and washing it in revolving barrels. In crushing the "metal," they use the "Chilian process." Huge round stones, called *chilenos*, five feet in diameter, are made to revolve in a basin containing the metal and water. From these the water holding the silver in solution is run beneath the stamps, and then into the patio, where the rich mud gradually dries and is deposited in great beds; then it is dried over furnaces, and "roasted," after which it is mixed with mercury and "washed" in revolving barrels; the surplus mercury is squeezed out in bags, then subjected to heat and volatilized, and the silver run into bricks weighing from forty to fifty pounds. I saw one mass of silver and mercury, as it was placed in the fire to be melted and volatilized, that weighed 750 pounds, and the silver alone was worth $6,000. The whole process is conducted within closed walls, and every weight and value taken down in writing as it proceeds. For

the reason that the substance sought is so precious, all these haciendas, mills, and mines are surrounded with high stone walls, that of San Miguel being quite twenty feet high, enclosing six or eight acres.

This was the former residence of the Counts of Regla, and their house, more than one hundred years old, is yet standing, while the gardens of San Miguel are famous throughout Hidalgo. Here the springs have their source, that swell into streams, and finally unite in the river that has worn its way through the basaltic formation of Regla. The hills circle round on three sides, but are open on the north, where the river flows out; an extensive wood fills this open amphitheatre, visible, as it nestles in the shelter of the ridge, for many miles. The most accessible portion of this basin, just outside and south of the enclosing wall of the hacienda, was once transformed into a beautiful garden, famous in the days of its glory for its lovely flowers and rare plants. The waters of the springs — called *ojos de agua*, or "water-eyes" — bubble up beneath shapely oaks hung with moss, and are detained by a solid wall, thrown across the hollow. Around the lake thus formed is a broad walk, with a low wall on either side, and at intervals are fashioned great curved seats of plastered stone, sometimes cut from the solid rock.

I doubt if there are as many mines now in Mexico as at the beginning of this century, when Humboldt estimated them at three thousand in number; but those in operation, owing to the introduction of improved machinery, are worked at greater profit. As the railroads are extended, and remote sections are brought into communication with the capital, they will increase in number and in value; but it will require many years to develop the treasures of gold and silver that Mexico holds concealed. Though the mines of Pachuca are among the richest, there are others in the republic yet more extensive. According to Sartorius, the Valenciana, of Guanajuato, a mine that yielded its owners an annual profit of a million dollars, has shafts and adits that cost several millions, and a lofty and broad spiral path is cut through firm rock to a depth of over five hun-

dred feet, so that troops of mules can descend into the lowest portions. In its best days it yielded annually seven hundred thousand *hundred-weight* of ore, and upwards of three thousand persons were employed in it. Second in importance among the old mines of Guanajuato is the mine of Los Rayas, from which the *king's fifth* alone, during Spanish possession, was $17,365,000. From the mine of El Carmen, in the State of Sonora, was taken a lump of pure silver weighing 425 pounds, and another is on record which weighed 2,700 pounds. The mines of San Luis Potosi have enriched thousands. The story has been often told of poor Padre Flores, of that State, who bought a small claim, and, after following the vein a little ways, came to a cavern containing the ore in a state of decomposition (like that found in the Santa Gertrudis), and from this silver cave obtained over $3,000,000.

From the four silver-producing States that hold the lead — Pachuca, Guanajuato, Zacatecas, and Sonora — have been obtained the greater part of that $4,000,000,000, which, it is estimated on good authority, Mexico has yielded, up to the year 1884. The mines of Pachuca have an advantageous situation in point of contiguity to the Mexican valley, and with direct communication with Vera Cruz; and if any mines in Mexico ever fulfil the promises of their owners, these should come to the front. Experience, however, has demonstrated that more foreign capital has been poured into Mexican mines *than has ever been taken out of them*. England's experiment of sixty years ago cost her millions, and Americans should heed the warning.

Though it may appear from the preceding, that the primitive processes are wasteful in the extreme, and that the very rivers are carrying away as wastage thousands of pounds of silver annually, yet it is doubtful if Americans can substitute for the Mexican process any other which will more economically extract the metal from ores of so low a grade as only are found here.

One never knows when he is safe in Mexico, either in person or in pocket. Now, though I had spent a week among the hills, and had seen nothing of an alarming nature, yet the man who rode down with me from the mining region astonished me

by relating a circumstantial account of the murder of eight men, while I was absent in the interior. These were all miners, and they considerately confined their operations to carving one another. Three were killed in a little hamlet I passed through, he said, just after I left it, and yet I did not see a single sign of disturbance while I was gone; in fact, it was a great disappointment to me, for I know that a spicy adventure is needed, just now, to relieve the monotony of these chapters.

A VAGRANT VIOLINIST.

XXIII.

TOLTEC RUINS AND PYRAMIDS.

WE left the great city at six o'clock in the morning, when the air was cool, and before the sun had risen far above the snow-capped volcanoes that guard the valley, gliding over a smooth road-bed, through level fields of grain and grass divided by hedges of maguey, past immense savannas where flocks of sheep were feeding, tended by most picturesque shepherds in sarapes and sombreros, through clean stretches of good brown earth, where the corn-blades were just springing in the hollows, past great haciendas with buildings like ancient forts surrounded by high and loopholed walls, with willows drooping above mud huts, and church towers rising everywhere on plain and hill. At seven we reached Atzcaptzalco, a little town, and after leaving this pueblo again took our way through beautiful plains, with fields of peas in bloom bordering the track, and green levels stretching far away on either hand, dotted with feeding cattle. Above and beyond were grades and curves, and the hills were ascended one after the other, and we dipped into other valleys and got glimpses of the country farther on.

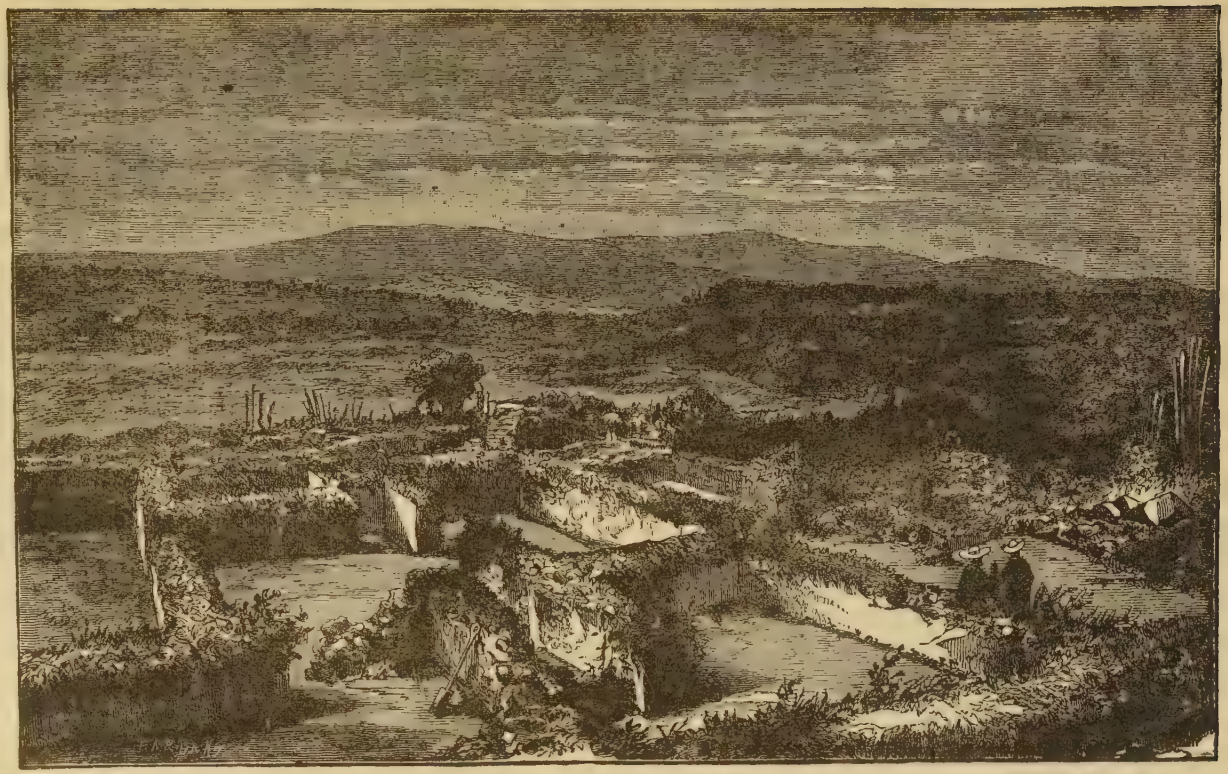
Up to Tlalnepantla the rich and easily-worked soil would have caused a Northern farmer to open his eyes, for there was not even a stone to sharpen the plough upon; it might be said that there were no ploughs either susceptible of being polished by friction from stones, for here these primitive farmers plough with a stick, as in times most ancient. One small valley we passed through belonged, with its surrounding hills and a gem of a lakelet in its centre, to one estate. Though the railroad cuts along the borders of a worthless hill, still the wealthy proprietor of this vast estate obliged the company to pay for a

right of way. There is room here for some reflection upon the rapacity and ignorance of some of these Mexicans, who throw every obstacle in their power in front of the wheels of progress.

Cuautitlan, another small town, reached in about two hours from Mexico, is much resorted to as a place for festive gatherings. Here the bull, the "noble patriarch of the herd," is taken from an uneventful life of inaction in the field, and permitted to try his prowess against the valiant Mexican. A flaming placard announced that there would be a bull-fight in this place that evening, — *Esplendida Corrida de Toros en la Villa de Cuautitlan*, — when there would be sacrificed *Cuatro Tremendos y Bravos Toros*.

A procession of beggars here invaded the train, and brought with them the odors of a dozen bone-boiling establishments; they also exhibited for our inspection a greater variety in deformity and mutilation than many a hospital can show in a year. These loathsome evidences of their claim upon humanity they thrust beneath our noses, expecting us to pay them for the privilege of inspection. After we had departed, and the strong breeze sweeping through the car had permitted us to indulge in a long breath, one of the engineers remarked that the civilizing effect of the "iron horse" was already being made manifest, — he had heard of several of these beggars having been run over. It has been a question among old residents in Mexico whether it would be better to leave the extermination of these wretches to the slow advance of the railroad, or to pass laws for their suppression and extinction. A most speedy way of killing them off has been suggested, which has the countenance of enlightened communities: it is to pass a law that every beggar shall bathe once a week, — there would not be one left alive at the end of a month's time.

At the hacienda of Huehuetoca, we were fairly in the dry country that forms a certain portion of Mexico, where acacias and cacti are the only plants of any size, and hills and plains alike are brown and treeless. In the crossing of the great ridge of hills that forms the outermost barrier around the valley of Mex-



TOLTEC RUINS.

ico, the engineers of the "Central" have availed themselves of a more magnificent piece of engineering than they themselves could have afforded to undertake, — a work dating from the beginning of the seventeenth century, — the great cut of Nochestongo, an immense gap, said to be three miles long, and in places two hundred feet deep. Utilizing the work of more than two centuries ago, the railroad thus secured an easy egress from the great mountain valley, and proceeds by easy grades to the country beyond.

The end of our ride on the railroad was at the small hamlet of Salto, for rails had not then — in the summer of 1881 — been laid much farther on; and we left the train and took to horses, which had been telegraphed for and were awaiting us. These animals we mounted, after many adjustings of stirrups and saddles, and galloped off in the direction of Tula. We were a picturesque crowd, with our Mexican saddles and accoutrements, our revolvers and blankets; though the novelty of my position, on the back of a horse I had never met before, rather interfered with my enjoyment of the scene. In five minutes our whole party was enveloped in a cloud of dust, so that all one could do was to cling to the saddle and let the horse steer his own course. We soon reached the Tula River bridge, where three solid piers of stone were in readiness to receive an iron bridge that was being put together on the banks, and where six hundred men were at work in the little vale. They were under the intelligent direction of a contractor, Mr. Carrigan, who successfully managed this large body of Indians and half-breeds, and was pushing the work ahead rapidly. It was pay-day, and the men were formed in a long line, each awaiting his turn to receive his week's wages. A common laborer on the road receives about thirty-one cents per day; and this amount, large as it is, he successfully manages, when he gets it, to squander in riotous living.

On our return, the next day, two huge derricks, which we had not seen before, were in position, ready to swing the iron bridge into place; three days later, it was resting upon its bed of masonry, and in less than two weeks more the engine had

crossed it on its way northward, and was snorting "*Buenos dias*" to Tula itself. The workmen lived in little huts, made of the branches of trees and the leaves of the maguey plant, just large enough to shelter them; and at a point on the river they had

TULA.

scooped out holes in the clay banks, and there taken up their abode. In the huts, and beneath bowers of branches, Indian women were quietly engaged in making tortillas and in other domestic duties. Looking upon this peaceful scene of activity, I could not help thinking of what a gentleman, an American

long resident in Mexico, had said to me, coming up on the train from Vera Cruz: "So long as these people can earn a real a day on the railroads, they will not listen to the *pronunciamiento* of any revolutionary chief."

From the bridge we took the graded railroad bed to the end of our journey. The scenery was mainly that peculiar to the dry hills, except where the aqueduct traced its fruitful course, or in the river-bottom. Now and then we were obliged to turn aside for an unfinished culvert, or walk our horses over frail bridges of brush, earth, and poles, and occasionally the "*Cuidado!*" of our guide would warn us of a bad place in the road to be avoided; but at the appointed time we reached Tula, over fifty miles from Mexico, and the centre of a populous State. In this town we found friends to welcome us, for it was the headquarters of the superintendent of construction and his party. Here I found a few friends who had left New York with me two months previous, and who had come on here while I stopped in Yucatan.

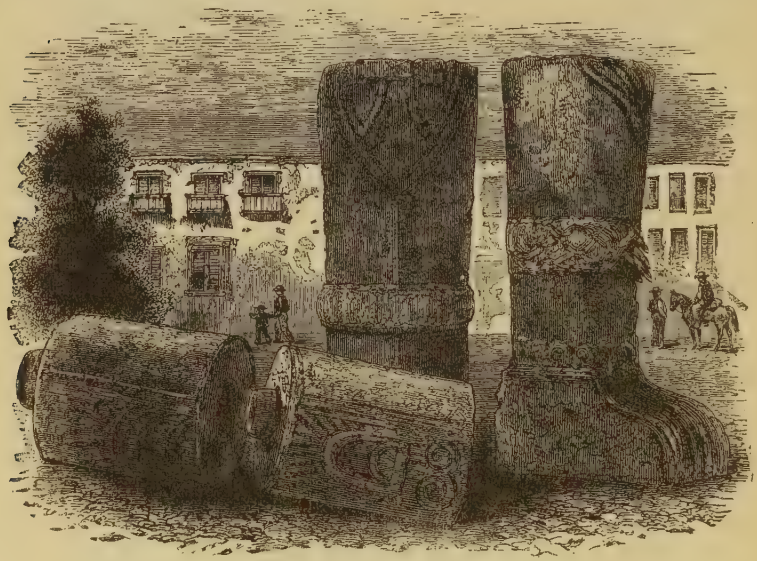
Surrounded by hills of apparently basaltic rock, the little city of Tula is compactly built of stone, taken, probably, from the ruins of Indian cities. It has a pleasant little plaza, containing a garden of flowers, with a fountain bubbling up in the centre of a stone basin. The town was formerly of great importance to the Spanish invaders and settlers, and here they built their most holy and noble cathedral, dating (if we can believe the inscription on the wall) from the year 1553.[1] It is a magnificent building, with lofty groined ceiling, and with a collection of paintings that appear to possess great merit, as well as antiquity. One especially, of the Virgin supporting the dead Christ, is less a caricature than is generally seen in these holy pictures. There is on her face an expression of real suffering; pity, compassion, and all the yearning of a mother's bleeding heart, are most admirably depicted. A wall, that once served the purpose of defence, surrounds this great cathedral, and build-

[1] The churches founded at this period, some of which still exist, were Tepoztlan, Ayacapistla, Mestitlan, Molango, Cuernavaca, Oculman, and Tula, and were adorned with paintings by distinguished masters.

ing and enclosure are well worth a visit, even in this land of churches and chapels.

The Tula River runs near, half around the town, and where the road reaches it a bridge is thrown across, — a bridge of stone, arched, and with a parapet, and with an inscription on a tablet stating that it was built in 1772.

Ancient Tula must be regarded as one of the most interesting groups of ruins in Mexico, the seat of the people who gave



SCULPTURES IN THE PLAZA.

to the country an advanced civilization, of which evidences yet exist. Above the city, on a hill overlooking two valleys, a ridge about a mile in length, are the ruins of buildings said to have been erected before even the Aztecs came to this country. In the year 648, according to Prescott, who follows the native historian, Clavigero, the Toltecs arrived in this valley and commenced their city; they abandoned it in the year 1051, and the Chichimecs took possession in 1170, and eventually the Mexicans, in 1196. Here the last tarried for one hundred and

twenty-nine years, took quite a breathing spell, in fact, and then went and founded the city of Mexico. It will thus be seen that the ruins of Tula have great antiquity. Prescott states that the Toltecs are the first people of which we have traditions, coming from a northerly direction. They entered Anahuac (Mexican valley) probably before the close of the seventh century. They were well instructed in agriculture and mechanic arts, and invented the complex arrangement of time adopted by the Aztecs. "They fixed their capital at Tula, north of the Mexican valley, and the remains of extensive buildings were to be discerned there at the time of the conquest. The noble ruins of religious and other edifices are referred to this people. Their shadowy history reminds one of those primitive races who preceded the ancient Egyptians. After four centuries, the Toltecs disappeared as silently and mysteriously as they came."

Whatever of mystery may have enveloped their advent, their disruption as a nation and final dispersion is as circumstantially told, and is as authentic, as any story or tradition relating to that early period. It was at the beginning of the eleventh century, if we may credit the Indian historian, Ixtlilxochitl, that the seeds of disturbance were sown in the hitherto peaceful kingdom of Tollan, and all through the illicit love of the then reigning monarch, Tecpancaltzin, for a woman, a daughter of Papantzin, one of his nobles. The sin of Tecpancaltzin, according to the historian, brought with it its punishment, and during the reign of his natural son, Meconetzin, the Toltecs were destroyed as a people, not only through internal dissensions and famine, but in a great battle waged with an invading nation from Xalisco. They were scattered in every direction, but have been traced mainly southward. The discovery of pulque, the national beverage of Mexico, dates from this epoch, and is said to have been made in this very region.

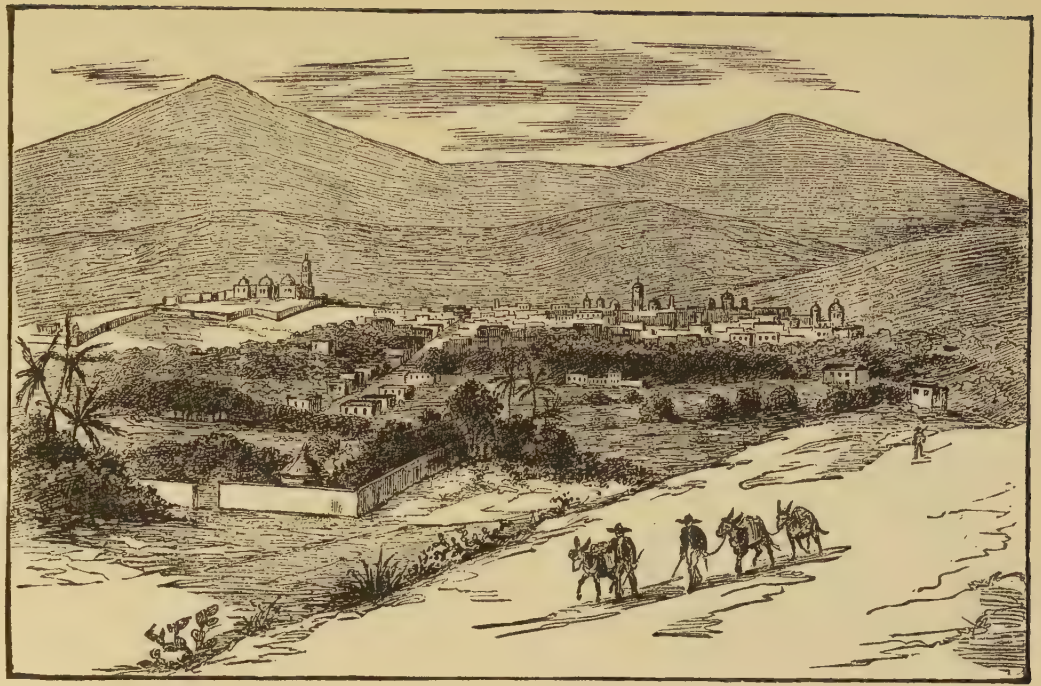
Upon examining the ruins on the hill, previously mentioned as commanding the town, we found that some one had been excavating there. I then recalled the account given by Charnay, the French archæologist, in which he pretends to have unearthed temples and palaces on this very site. Imagine a

palace composed of rooms about six feet by eight! Such were about the dimensions of the apartments referred to, and which we photographed and rambled over that day.

Señor Cubas,[1] in a paper, *Ruinas de la Antigua Tollan*, published in 1874, gives a list of the antiquities discovered near Tula, and lithographed figures of the most prominent sculptures, which included a "zodiac" and a "hieroglyph," now seen in the lintel of the principal entrance to the great church. In the Plaza are some great stones, taken from the ruins of the Toltec city. There are three colossal sculptures, perhaps of Caryatides, standing erect, and another lying down; this last is in two pieces, and was formerly united by tenon and mortise, even as I found the adornments on the palace at Uxmal. Near the office of the railroad superintendent is a great stone ring, like those found in the ruins of Chichen-Itza. At the door of the cathedral is a beautiful baptismal font, — at least, that is its use now, — taken from these same Toltec ruins. Doubtless, nearly all the buildings here were made from stone taken from the Toltec city, as you may find sculptured stones used for the pavement of courts, inserted into walls, etc.

I have thus roughly sketched the old city at which the great railroad arrived in April, 1881. Let tourists and archæologists visit it, now that they can do so with little fatigue. It does not need a more prophetic eye than belongs to ordinary man to discern the result of the opening of a country so rich in mineral and archæological wealth. For a thousand years man has lived in this country, — a thousand that are chronicled, — and no one knows how many previously. The works of his hands lie scattered throughout valley and plain, crest many a hill, and adorn many a secluded vale. The time is coming when these buried cities shall again see the light. The time has come when it is possible to reach many hitherto hidden from

[1] The same author gives a table showing the Indian towns and the languages spoken, and by this we see that the *Otomi* predominates, one in which some philologists have asserted there is an analogy with the Chinese. The Otomies constituted the most ancient population of Anahuac, and were expelled from Tollan on the arrival of the Toltecs.



QUERETARO.

the world; daily, workmen are unearthing some relic of the past, and if our scientific societies would keep pace with the development of this country, they should appoint a small party of qualified men to travel over this road with the advanced engineers.

Tradition has it that here the great culture hero, Quetzalcoatl, developed the civilization that raised the Toltecs above the level of their neighbors. Here is pointed out that famous "Hill of Shouting," whence the "God of the Air" sent his summons and commands over the entire vale of Anahuac. Here were those celebrated gardens, in which grew cotton ready dyed in various colors for the loom, and those famous crystal and feather palaces.

Some say that Quetzalcoatl was a native of the East, and came from over the ocean. For him, indeed, has been claimed nearly every nationality on earth, and he has been by turns a Welshman, an Egyptian, and even an Irishman; but, as it is expressly stated that he was a man of peace, this last supposition is hardly tenable.

Beyond Tula, and within reach of a day's excursion from Mexico City, is Queretaro, a city founded by early Spanish settlers, and celebrated for its magnificent aqueduct, its vast and enterprising cotton factories, and for the sad part it played in the overthrow of the Maximilian dynasty.

The Hill of Bells, — *Cerro de las Campanas*, — where the Emperor was shot, is conspicuous near the city, and the objective point of many a pilgrimage, now that the railroad has made it accessible from the capital.

Situated southeast of Tula, and about forty miles distant from Mexico City, are other ruins intimately connected with Toltec history, — the pyramids of Teotihuacan. Both during their residence at Tula, and after the disruption of their empire, when a remnant of the Toltecs turned their faces in this direction, these pyramids were considered by them as the nucleus of a holy city, *Teotihuacan*, City of the Gods. Their kings came here to be crowned, and here dwelt their priests; but though their traditions undoubtedly refer to these pyramids, yet they are doubtless of pre-Toltec origin. The pyramidal structure seems to have been confined to the table land and its central slopes;

as in the South, this primitive method of a people yet in the infancy of art and architecture is succeeded by grand buildings worthy the name of palaces, and adorned with sculptures that have elicited the admiration of the world.

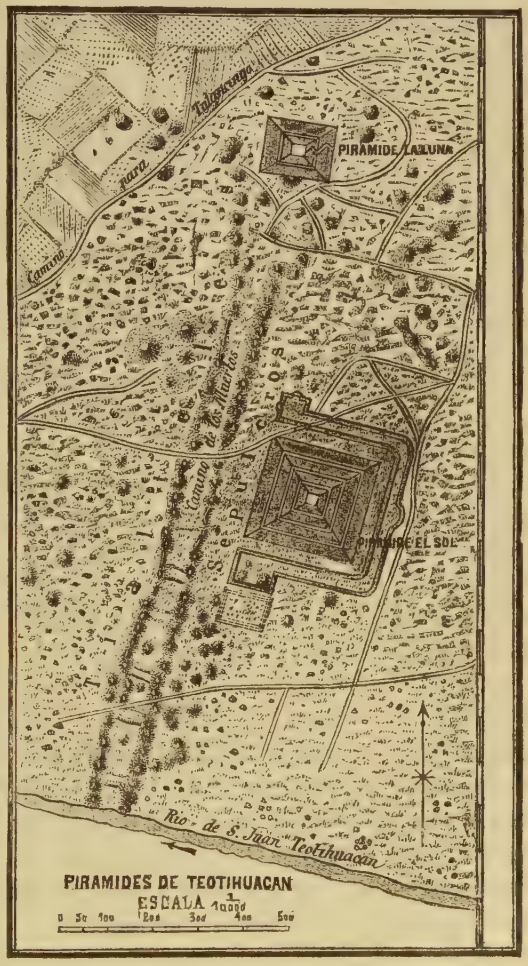
MORTISED BLOCK AT TULA.

The largest structure here is the "Pyramid of the Sun," — *Tonatiuh Itzacuatl*, "House of the Sun," — with a base of over seven hundred feet, and a height of two hundred; the next, the "Pyramid of the Moon," having one side of its base 426 feet in length, another one 511, and a height of 137 feet.[1] These are the principal pyramids, but there are also many smaller mounds and pyramidal elevations, which nearly surround the larger ones, and line a broad roadway, called the "Street of the Dead." The two pyramids are 2,700 feet apart; both are built in terraces, and to-day have broad level platforms at their summits, with pathways much obstructed by *débris* winding up their sides. Both are composed of rock, stones, cement, and pottery, and their outlines are hardly any more sharply defined, at the present day, than an ordinary steep-sided hill. The vegetation of aloes and creeping vines which covers their sides contributes to hide the pyramidal outline, and the facing of dressed stone, with which

[1] Señor Cubas gives the largest dimensions of any one to these pyramids, as is natural, he being a son of Mexico and solicitous for her reputation: *Piramide del Sol* (Pyramid of the Sun), north and south side of base, 232 metres; east and west (western face), 220 metres; height, 66 metres. *Piramide de la Luna* (the Moon),

their sides were once probably encased, has been entirely removed in the lapse of time.

The summit platform of each pyramid once supported respectively images of the sun and of the moon, covered with gold, and glowing so brightly as to guide the worshippers on their way to the valley to visit this most holy place of ancient times. No vestige of image or statue remains, save a great carved block, called a "sacrificial stone," now lying two hundred yards from the Pyramid of the Moon, said to have been overthrown by the Spanish bishop of hated memory, Zumárraga, and excavated by order of Maximilian.


PIRAMIDE LA LUNA
Camino de los Muertos
Rio de S. Juan Teotihuacan
PIRAMIDES DE TEOTIHUACAN
ESCALA 1/1000
0 50 100 200 300 400 500

In the western face of the Pyramid of the Moon we saw an opening, which is supposed by some to lead to hitherto unexplored treasure-vaults deep down in the body of this vast

east and west line of base, 156 metres; north and south, 130 metres; height, 46 metres; orientation, north face of the Moon, from east to west, 88° 30′ N. W.; orientation, east face of the Sun, from south to north, 1° 30′ N. E.

structure. By creeping on the hands and knees through this narrow passage down an incline for about twenty-four feet, one has the satisfaction of reaching a *pozo*, or well, about fifteen feet deep. Farther than this no one has yet penetrated; yet it is safe to say that this aperture was left by the ancient builders of this pyramid, and not made by treasure-seekers, as is shown by the carefully cut and smoothed walls of the passage and well. It is conjectured that the Pyramid of the Sun has a similar opening, as yet unknown, because hidden by the accumulated *débris* of centuries; and if this is found, it is thought that a larger chamber will be discovered than in the Pyramid of the Moon, owing to the greater length of base, approximating nearly to that of the Pyramid of Cheops. Two great peaks rise from the distant ridge of enclosing hills, one exactly south and the other north, and a line drawn from one to the other of these pyramids passes exactly over the apices of both. There may be nothing in this, yet it struck me as a remarkable coincidence, as I verified my casual observation with the compass, standing on the summit of the Pyramid of the Sun.

South of the Pyramid of the Moon, and running along the western base of that of the Sun, is the wonderful avenue called *El Camino de los Muertos*, — the Road of the Dead, or *Micoatli*, lined on either side with tumuli. These mounds have been a still greater puzzle to antiquarians than the pyramids, yet it would seem that the ancient appellation applied to the place, "Path of the Dead," would explain their object. Señor Cubas says that from some of them human bodies have been taken; and it may be that those clay heads that we find scattered in such numbers over the plain are the effigies of buried priests and kings. These heads of clay or terra-cotta, so grotesque in feature and singular in design, are so abundant that one can hardly wander over a freshly-ploughed field without treading on one. No two of them, it is said, have ever been found alike in feature, and this would seem to bear out the theory that they were designed as images of the kings, priests, or minor rulers.

Garcia Cubas, in his study of these pyramids, likens the insig-

nificant Rio Teotihuacan, which flows near, to the Nile, and the *Camino de los Muertos* he calls another Memphis; in fact, he finds here a duplication of the pyramids of Egypt.[1] This learned Mexican deduces an Egyptian contact with Mexico, and argues that the people who constructed the American monuments, if they did not come directly from Egypt, were at the least descendants of others to whom the Egyptians had trans-

CLAY HEADS OF TEOTIHUACAN.

mitted their knowledge. But as this was written a dozen years ago, the worthy man may have changed his mind by this time, and may now view them differently.

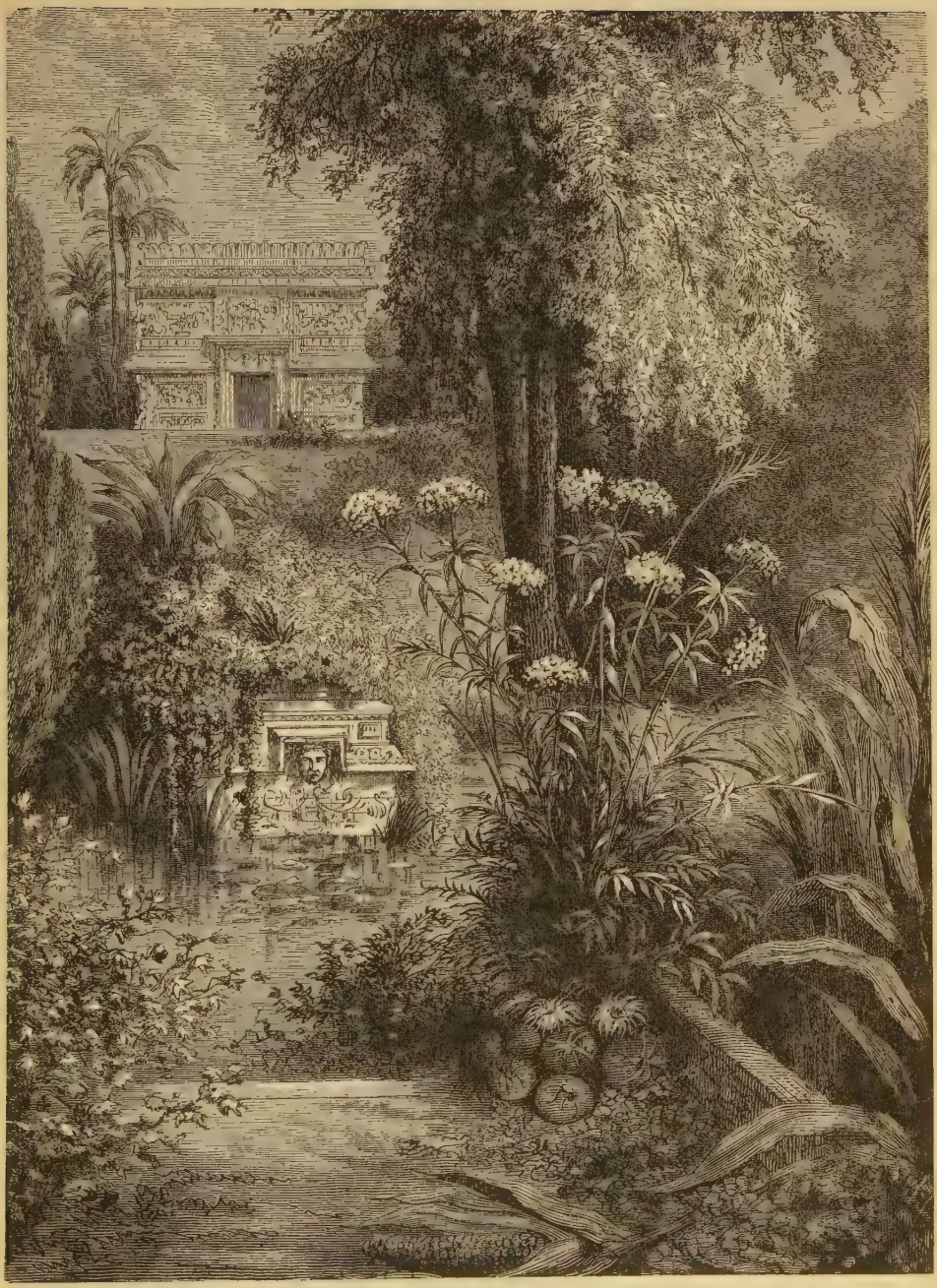
That portion of the plain of Teotihuacan immediately about the pyramids is rather sterile, but about the little village of San Juan, where clear streams have their birth, near an ancient *templo*, the soil is fertile, and the dwellers there seem contented and happy. At all events, they are contented and lazy, and it is only by very active skirmishing that one may eventually capture a

[1] *Ensayo de un Estudio Comparativo entre las Piramides Egipcias y Mexicanas*, Mexico, 1874.

boy as guide to the ruins, and it requires equally hard work to find a horse. But one's energies are taxed to the utmost to keep away the horde of ragged juveniles, who appear with sacks full of clay heads, obsidian knives, and curious *candeleros*, which they insist upon your buying. Travellers have wondered, as we wonder to-day, at the unlimited supply of these "antiquities," as the fields are actually full of them, and we discovered many as we rode over them on our horses, and many others we bargained for with the natives.

My next visit to the valley's brim was to Tezcoco, the ancient seat of learning, — the "Athens of Anahuac," — situated across the lake of the same name from Mexico City, some ten miles in a direct line, but nearly thirty by the travelled road. My companions on this occasion were the Rev. J. W. Butler, Methodist missionary to Mexico, and Mr. T. U. Brocklehurst, an English gentleman, who was also with me at Teotihuacan, and who has since written a very instructive book of travels.

Our mission was to rescue an imprisoned native preacher who had been unjustly incarcerated. Him we found in jail, an elderly Indian, with as mild a countenance as it is possible for one of these natives to have. He had but one eye, and those who were instrumental in having him placed in durance vile had taken advantage of this fact to creep up, as he was riding along one day, and shoot at him from his blind side; failing in their object, they hastened off and lodged a complaint against him — for not allowing himself to be shot decently and in order! He never had carried a fire-arm of any kind in his life, he told us; but there he was, securely caged, and some of his parishioners slept before the door of the jail every night lest he might be taken away and never heard of again. The upshot of it was, that he lay in prison three weeks longer, and was then released on a promise that he would be more accommodating when shot at another time by good and faithful Catholics. Notwithstanding we read that the South Sea Islanders have discontinued the practice of eating the missionary, since the reported discovery of *trichinæ* in some of them, the Mexican hunter is not to be deterred by any such canard. He does not hunt a



AN IDEAL TEZCOCAN GARDEN.

missionary for his meat, but from love of the sport, and the strong arm of the government alone exerts a repressive influence over him.

We were in Tezcoco, that home of early kings, one of the three seats of power in Anahuac at the beginning of the fifteenth century. A mile or two from town, the place is pointed out whence Cortés launched his brigantines, at the investment of the Aztec capital. At the period of his coming there were greater pyramids and richer palaces, and perhaps more extensive gardens, than in the city ruled by Montezuma himself. Remains now exist here of three large pyramids, or temples, masses of adobe brick intermixed with shards of pottery and fragments of sculptured stones. Only just before our arrival, a gentleman from Chicago, Captain Evans, brought to the notice of the world a carved stone of goodly dimensions, which had been found in one of the adobe mounds a few months previously. Over the gateway to the garden, adjoining the old church, were three hideous idols, and a search throughout the wretched town which now occupies the site of the ancient metropolis would reveal many a relic of the departed Tezcocans. But little business is done here now, since the lake has left Tezcoco miles inland, and a few *tiendas* and one *fonda* comprise shops and hotels; but the people are well disposed towards a stranger, and one can secure tolerable lodging at the "Macedonia," and Mexican meals at the "Restaurant Universal."

Now reached by the narrow-gauge branch of the Morelos road, Tezcoco is easy of access, and no visitor should leave out of his journey this once famous Acolhuan city. As for me, I revelled in Tezcoco, for it had been known to me, through Bernal Diaz and Prescott, for many years. What can be finer in the descriptions of the older historian than that of the arrival of the timber for the brigantines at the border of the lake, when the brave Tlascalan Indians marched in, several thousand strong, with the lumber on their shoulders, and shouting, "Tlascala! Tlascala! Castilla! Castilla!" for the space of half a day? And here, too, was the palace of Nezahualcoyotl, the King David of Mexican history, whose halls and gardens are so lovingly

depicted by the later historian. Where was the grand palace erected, and where that temple to the "Unknown God of Causes"? or did they exist solely in the fertile fancy of the Indian chronicler, Ixtlilxochitl, himself a descendant of the monarch of Tezcoco he fain would magnify? But whether exaggerated or not, there was sufficient remaining at the time the Spaniards came here to excite their wonder; and there are ruins enough now to testify to an ample city and magnificent buildings.

"Nezahualcoyotl's royal palace measured nearly three quarters of a mile in length, by half a mile in width. Its vast courts were not wholly occupied by affairs of state, but were open for the reception of foreign embassies, and as retreats for men of science and all literary culture; and here was gathered the literature of the past. The saloons of the royal wives glittered with walls of alabaster, or were rich with gorgeous hangings of feather-work. These opened into gardens of great beauty, enlivened by fountains and the varied plumage of tropical birds. Like Solomon, the king had gathered to his court and capital specimens of all known living animals. The annual supply of grain and fowls and fruit for the royal tables was enormous. In the midst of this luxury, the king ruled in the main with great justice. And according to the superstitions which he held, he might be counted an unusually religious man, as well as a philosopher and poet."

In passing, I would call attention to some modern ruins, not far south of Tezcoco, in the town of Tlalmanalco, which surpass any remains, in the former place, of the more ancient palaces.

Back of the present city of Tezcoco and at the foot-hills of the mountains supplying the streams which fertilize the plain, the wise king constructed a *buen retiro*, a palace and a garden, and here to-day may be found the remains of vast hydraulic works,—an aqueduct passing from hill to hill over an embankment two hundred feet high, a bath cut from solid stone; and in former years the face of a cliff had sculptured on it what was thought to be an Aztec or Toltec calendar.

Having exhausted the treasures of the town, I proposed to Mr. Brocklehurst that we procure a guide and ride out to these ruins at Tezcosingo, said to be less than two leagues distant. He assented, and while our friend, the good missionary, was interviewing the municipal authorities, we hunted up horses, and soon found a man who could tell us all about it. We started; but our usual luck attended us, for, after toiling until nearly dark, we only came in sight of the hill, our guide having lost his way. It was a most vexatious thing, and we were hardly repaid by the view we got of the famous Lake Tezcoco, lying between us and the Mexican capital, the one like a burnished silver shield, the other with walls of alabaster. Our adventures ended by a midnight ride in a miserable hack, around the lake, to the station at Teotihuacan, where we took the early pulque train for Mexico.

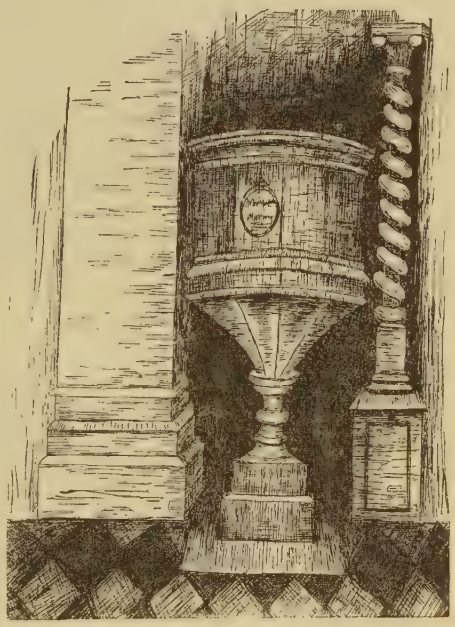
XXIV.

TLASCALA, PUEBLA, AND CHOLULA.

AT Apizaco, a station on the Mexican Railway, you leave the main line and take a branch to Puebla. Your ticket has a stamp on it bearing the likeness of one of the most villanous faces it is possible for man to wear. I suppose it is that of some old revolutionary hero, whom the Mexicans have shot, and then repented themselves, and made amends in this way for the injury done, as that is their usual custom. At the small station of Santa Anna, you leave the train for Tlascala, — not the town of forty thousand inhabitants which Cortés compared to the most flourishing cities of Spain, for the entire district has now scarcely that number. Probably not more than five thousand people now inhabit this ancient town. In the Plaza, which is also a very pleasant garden, is a fountain, the brim of which bears a long inscription, stating that it was erected by a grand Virey in 1646. Here is something savoring of antiquity at the very start; further research will take us back to the very beginning of Tlascalan history, — to those days when the Spanish soldiers were honored guests of this very town, when Montezuma was quaking with fear in anticipation of their arrival.

In the municipal palace, *El Palacio*, are four paintings, bearing names which the student of history will recognize at once as those of allies of Cortés, after he had left behind him the hot coast region and had entered and finally won to his cause the valiant little republic of Tlascala. They are "true and faithful pictures" of Vicente Xicotencatl, Don Lorenzo Mazicatzin, Don Gonzalo Tlanexolotzin, and Bartolome Zitlalpopoca, as they appeared to Cortés in 1519. A score of idols cumber the floor of the chamber containing the paint-

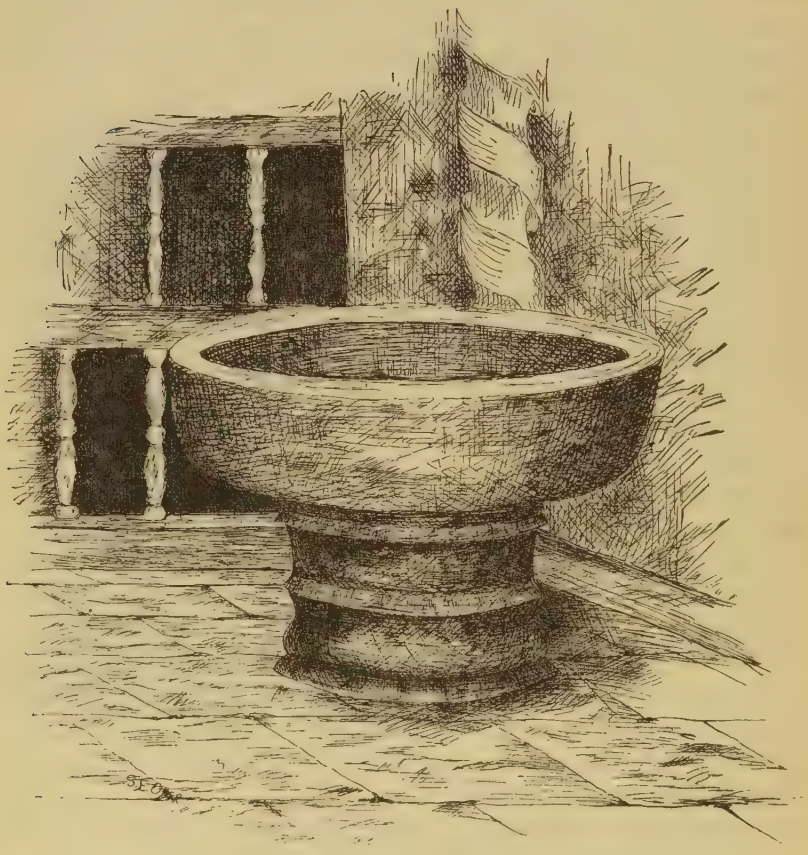
ings, on the walls of which is the *Titulo*, or title of freedom, presented the Tlascalans by the king of Spain, besides the *capote*, or cape, of the first Indian chieftain who received baptism in New Spain. In a glass case is that war-worn banner of Cortés, which has remained in Tlascalan possession ever since the subjugation of the Aztecs. It is of a faded tea-colored silk, rent in many places, with the arms of Spain in the upper corner; the banner-staff is gone, but the pike-head that once topped this proud emblem remains.



EL PULPITO.

Above the town, on a little hill, is the very old convent of San Francisco, one of the first of four erected by the *frailes*, in 1524. Its roof and rafters are great beams from Tlascalan forests, which produced the timber for the brigantines used at the siege of Mexico, but which, like the builders of those boats, have disappeared, and its ceiling is studded with golden stars. Entering the cool sanctuary, leaving outside all noise, and light, and merriment, I find that more than one hundred paintings yet adorn the walls of this venerable building, one of which bears date Año 1677, and the finest is of one of the Spanish queens. Securely glassed, we see fragments of the bones of three holy saints, sent from Rome in 1754. Alas that these relics should have survived their possessors, and have fallen into such sacrilegious hands! Everything points to the first years of Spanish supremacy; even the old bell, hanging by precarious clutch in

the tottering tower, is dated 1587, and has on it a figure of a *conquistador* firing his arquebuse into a tree, beneath which crouches an abject Indian. Inside the church, we are reminded that this town of Tlascala was the first of importance to give



THE FONT.

in its allegiance to the king of Spain, and that its claims upon history are strong. Here we stand before the first pulpit erected in Mexico, — "*El Primer Pulpito de Nueva España.*" It is of stone, now plastered over and painted in imitation of marble, with red and gilt stripes. The inscription on it

reads, "*Aqui Tubo Principio el Sto. Evangélio en este Nuevo Mundo.*" Half hidden in a recess, opposite the pulpit, is another object of still greater interest, though it is nothing but a hollowed stone, about five feet in diameter, three feet high, and a foot and a half deep. It is called the *Fuente de Maxicatzin*, and is no other than the font from which the great and loyal Maxicatzin and his coadjutors, senators of Tlascala, were baptized. It is not a matter of tradition alone, but of history, that when Cortés retreated with the remnant of his army to Tlascala, after that disastrous defeat of the *Noche Triste*, the Tlascalans received him with affection, instead of upbraiding him for the loss of the thousands of their young men whose lives he had sacrificed. To convince him more effectually of their sincerity, the senate of Tlascala, with Maxicatzin at their head, presented themselves for baptism. Let the inscription on the Fuente tell the story: "Este monumento, cuya autencidad conserva la tradicion, fue la fuente bautismal de los ultimos Caciques o Señores de la Antigua Republica de Tlascala; el año de 1520."

Night fell about me as I descended the hill and sought the only hotel Tlascala could boast, a comfortless *meson*, merely a square surrounded by walls enclosing apartments, — such a tarrying-place as suited the traveller when horses and diligences were more in use, and all could be stabled within sight of, and on the same level with, himself. Early next morning I started out with a guide for the church of San Estevan, two miles from Tlascala, and built upon the site of the palace of Xicotencatl, the Tlascalan chief so basely slain by the Spaniards before Tezcoco. A great font is here, made in 1691, and an old painting of the baptism of the chief last mentioned.

In my walk that cool morning, I enjoyed very much the ramble through such a secluded region, where we met only a few shepherd boys, armed with slings and stones, driving sheep and goats, and some children going to school. My guide climbed a tree and threw down to me some juicy cherries, and led me through gardens which smiled such a welcome that they seemed to breathe only of peaceful delights. But emerging from one of these gardens into the highway, I suddenly stumbled upon

a cross, — a black, wooden cross, — stuck up in memory of a man but recently killed. The frequency of these crosses rather dashes one's desire to penetrate new regions in this land of insecurity; —

> "For wheresoe'er the shrieking victim hath
> Poured forth his blood beneath the assassin's knife,
> Some hand erects a cross of mouldering lath;
> And grove and glen with thousand such are rife,
> Throughout this purple land, where law secures not life."

From the province of Tlascala, in the middle of the sixteenth century, was taken the territory set apart for Puebla, and the city founded there, in 1532, became subsequently more famous than the original capital of the plucky little republic. The city of Puebla, to which I made my next move, contains more churches and convents to the square mile than any other town on this continent, — more places of worship, according to its population, even than Brooklyn. In Mexico City every vista of every street is terminated by a hill or mountain, blue and hazy in the distance, perhaps, but still there, to remind one of the works of nature while contemplating the works of man; in Puebla every vista is cut short by a church, or chapel, or some religious edifice. You are confronted at every turn by men begging for the Church, beggars with flaunting rags and tin cash-boxes, which they display before your eyes, and, what is worse, under your noses. Priests, wrapped in great black cloaks, form a goodly proportion of the pedestrians; from some door of every block issues the sound of a bell calling to prayer, and kneeling crowds everywhere pay homage to the Virgin; hat in hand, the true believer passes through the streets with head

IN THE CONVENT.

uncovered, for fear he might pass a chapel unobserved. The pervading tone of society here is religious; little business is done here, and little labor, because Sundays and feast days form the greater portion of the week. Sunday is, indeed, a general market day, and devoted to buying and selling, but not to work. It is strange to find such a contrast to Mexico: there, every one does as he pleases; here, he must devote a certain portion of his time, or his earnings, to the Church.

"Pay or pray," is the inspiring motto the holy men in office here have nailed upon the cross. Successful in preventing the main line of railroad from passing through or near their city, the bishop and priests have, from the beginning, kept Puebla as a place set apart from the active life of the world. Rich men give of their substance freely; poor men — and they constitute the great majority — go clothed in rags that the Church may be benefited thereby. They even refrain from using that freest of all gifts of God to man, water, and pass from childhood to old age without washing face or hands, for fear, perhaps, that the money wasted on soap could better be devoted to the Virgin.

Though the government stripped the clergy pretty close in its various decrees confiscating their property, and reduced them from affluence to comparative poverty, yet the last few years have seen a revival of their prosperity. At one time they held property to the value of $144,000,000, yielding an income of $12,000,000, a great portion of which they lost under Juarez and the liberal rulers. Silently, but surely, they have pressed the work of recovering their lost property. Though the country abounds in ruined churches and convents, yet they are principally in districts thinly settled, where the people are too poor even to keep the buildings in repair, or in cities where there are too many to be filled. The principal churches are showing the effects of a revival in business; walls have been repaired, new towers added or old ones built upon, the altars freshly painted, railings newly gilded, and the sacred emblems and images polished up and decorated. Cautious as the priests are in showing their fast accumulating wealth, it cannot but be

observed that they are again becoming what they were before the adverse decrees of twenty years or so ago, — the holders of the moneys of the people, especially of the poorer classes.

But their confiscated property? They are rapidly gaining back a goodly portion of it, or its equivalent. The average Mexican is superstitious; he is valiant in times of peace, vainglorious before a battle, but craven and knock-kneed when the time of trial comes. Consequently, when sick and like to die, he will probably — no matter how he may have apostatized and fought the Church — send for the priest. Mindful of the fact that all things of this world belong to the Lord, and that the Catholic Church, as the chosen of the Lord, possesses a lien upon these worldly goods, the priest refuses to administer the sacrament without some restitution. If the dying man has bought confiscated church property, he must restore its value, with interest, or if he has even owned it at second or third hands, and fairly paid for it, he must pay again its value to the Church before he can get a clear title to heaven, or his heirs a title to his temporal possessions. With a persistence characteristic of these priests, they are following up and ferreting out their lost effects; and it may not take more than a decade, at farthest, for them to be as strongly intrenched as in the palmiest days of their glory.

The great cathedral of Puebla is not so large as that of Mexico, nor has it the merit of being built upon the site of an Indian teocalli, as has the other; it lacks some years of being as old, also; but, to supply all deficiencies of this sort, the priests promulgated the story of the repeated visits of the angelic hosts. Yes, right here was the last recorded and verified visit of those heavenly messengers to the inhabitants of this sphere of ours. When they came, why they came, and how they came, is it not all entered in ecclesiastical records and sworn to? It is. And do not the faithful believe it, every word, and do they not point out to you the very place where the angels roosted, the very towers of the cathedral they came down to assist in building, and the very stones they placed in position? They do. As the workmen slept, the angels descended, and added stone

CITY AND VALLEY OF PUEBLA.

to stone upon the great towers. There is a miracle in this, for the priests say so; and hence they gave the city the name of *Puebla de los Angeles*, or City of the Angels, which it bears to this day.

The cathedral is mainly built of dark brown stone, covers a great area, and is being enclosed with an excellent iron fence, every post surmounted by an angel, and its face ornamented with a cast of some saint of the past. The façade of the northern entrance is embellished with statues and medallions in marble, and the mitre and keys of the Pope. In the north face of the western tower is a clock. The main entrance is in the western front, and here are more statues in various niches, sculptured saints and cherubim, and the date of erection of the cathedral, — 1664. The bronze casts that face the stone posts, and the angels that cap them, were produced at the foundery of one Marshall, an American, who had been here forty years or more.

If you wish to climb into the towers, you must enter a narrow doorway, and ascend a circular stone stairway for some distance, when you are stopped by a porter, who demands a real, and, this paid, he rings a bell for another man to let you in. Both men, with their families, live in the tower. There are two bell-towers, one above the other, containing the great bell, stamped 1729, and eighteen others, of various dates up to 1828. An inscription here states that the towers were erected in 1678, in the reign of Carlos II., at a cost of one hundred thousand dollars.

The top of the cathedral commands the entire Puebla valley, with its broad green fields and swelling hills; domes and towers rise everywhere, and glisten from every hill-top, many of them being covered with glazed tiles that reflect the sun. Arid plains alternate with verdant fields. Outside the city walls there are not many houses visible, except they are collected in pueblos or villages, and the haciendas are few, the farm buildings being concentrated in one spot, and surrounded by high walls. Though the view on every side is charming, with billowy plains running south and east, and the great mountain, Malinche, rises in the

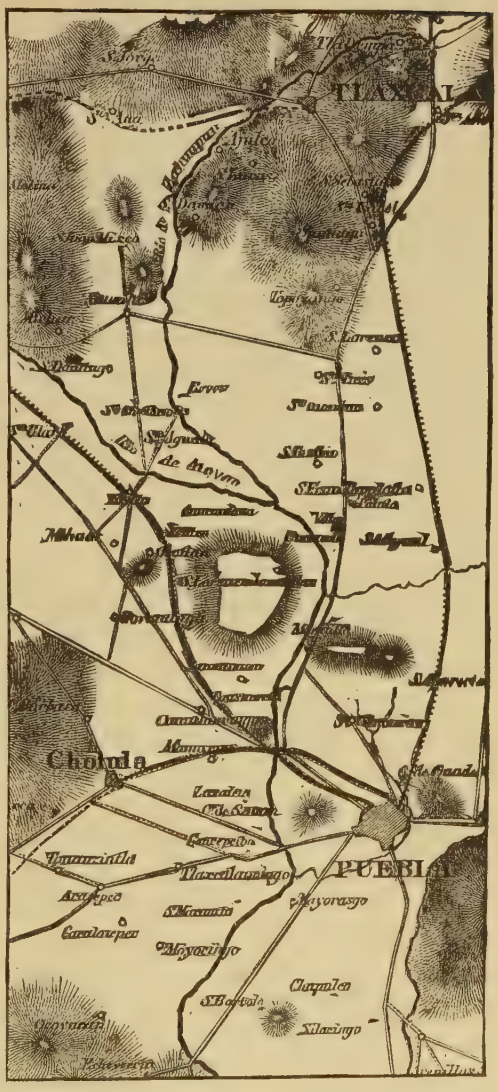
north and overshadows the city, our gaze constantly wanders toward the west, — toward the twin giants, Popocatapetl and Ixtaccihuatl, crowned with pure white snow. Between them is the gap through which Cortés marched when he first advanced upon Mexico, in 1519, and which I penetrated in May, in my ascent of the great volcano. Right in line with this mountain pass, with an extinct crater behind it, rises the world-famous pyramid of Cholula, its domed chapel glistening above its cone of dark green trees. To the east is the road to Vera Cruz, over which General Scott marched when on his way from coast to capital, after the battle of Cerro Gordo, and before his masterly investment of Mexico.

Just outside the city gates is the fort where the French were repulsed on the 5th of May, 1862, in which affair the Mexicans won the only victory which they ever gained over anybody but themselves, and which they celebrate every year with great and joyful demonstrations. Below is the *zocalo*, or public square, in the centre of the city, with the cathedral on the east side, and the *portales*, beneath which much merchandise is sold, on the other three. Large trees, in which birds are constantly singing, fountains, music, and flowers, make it a pleasant place to visit. If any one should follow in my footsteps and visit Puebla, let him secure the services of the sexton, and wander over the vast roof of the cathedral, and climb the dizzy steps on the outside of the eastern dome, for from that point the view is magnificent.

The interior is as gorgeous as that of the cathedral at Mexico, and the grand vista down the long nave is fully as effective. The base of the great altar is beautiful marble, and so, apparently, is the whole altar dome, as well as the fluted pillars supporting it; a bright, though rather questionable effect is given to these by strips of brass alternating with the flutings. Fresh gilding and paint show that the cathedral is in good repair inside. If you will sit down awhile in the cool room, you may see the priests pass in procession, marching out from some mysterious interior, and then marching in again, — priests old and very fat, and old and very lean, priests that waddle as they walk, and

priests that stick out necks and lips in seeking after a posture of humility.

Puebla was once famous for the riches of this cathedral, and especially for a great lamp of gold ornamented with precious stones, said to have been worth one hundred thousand dollars. This most valuable treasure was given by the Church to General Miramon, who represented their party, to aid in repulsing Juarez, and was broken up and sold to various parties. Here you will see fine specimens of that clear alabaster, or species of onyx, known as Puebla marble. It is obtained from the quarries of Tecalli, six leagues from the city. Many different ornaments are made from it; it forms portions of valuable buildings, and is even so translucent as to be used for windows, in a small church near the quarries.



PUEBLA AND VICINITY.

There are many marble-workers here, and along the river that drains the city are no less than fourteen cotton factories, a woollen, a paper, and a match factory. The cotton and woollen cloths manufactured here, though generally of coarse quality, find a ready market throughout Mexico. Railroads have not disturbed this sleepy, sanctimonious old city greatly yet, but in two or three years it will wake up a little. There is but one newspaper here, and no news. The business is mainly in the hands of French and Germans, who jealously regard the incoming Americans, and who will have cause for that feeling in a few years, when the coming railroads shall pass through.

In the State college there is a fine library of old books, principally ecclesiastical, and very valuable ones pertaining to the history of Mexico. There are said to be some veritable paintings by Rubens and Murillo in a private collection in the city. As resorts, morning or afternoon, the two paseos, the *Paseo Nuevo* and the *Paseo Viejo* — the new and the old walk — are delightful. Near the former are the sulphur baths of San Pedro, which are very refreshing and medicinal, and close by is the old convent of San Xavier, partially destroyed during the French invasion.

The bull-ring is in this part of the city, and is in use every Sunday; one day it was for the benefit of a small church, and the next Sabbath it was in honor of the feast of "the sacred blood of Jesus." The markets are long, low, shingled sheds, covering platforms of stone raised about two feet above the pavement, where the women and men squat with small specimens of all the vegetables grown in Mexico. Prices are very low: cabbages, six cents per head; onions, seven for a *tlaco*, a cent and a half; radishes, six for the same amount; eggs, three for a *medio*, six cents; frijoles, four cents per quart; beef, six to eight cents per pound; crockery, — an ordinary pan, three cents; a jar, a tlaco; a ten-gallon jar, from twenty-five to thirty-seven cents, etc. In the shops, articles of domestic manufacture are equally cheap. I bought a lariat for two reales, while the *metates*, the great flat-faced stones upon which the corn is ground, cost only from four to eight reales, and the rolling-pins

but a medio each. These stones are quarried in the volcano, forty miles away, and brought here on the backs of Indians or donkeys. One can estimate the value of labor by this, for one of them must cost, from first to last, a week of work.

I enjoyed exceedingly my stay in Puebla, although while there I was in a constant state of agitation, owing to alarming telegrams from the North; for it was that memorable first week in July, 1881. We in Mexico at first only received meagre news of the great calamity that had befallen the nation in the shooting of President Garfield, and in Puebla, where there were not half a dozen people who could speak English, there were no details given at all. The Fourth of July was a gloomy one, to me at least, for the day before came a telegram announcing that Garfield was dead, and that the United States was convulsed with war. It was nearly a week before the true version reached me, and during all that time I had no one speaking my own language to converse or condole with except a young Chicago merchant, whom fortune had thrown into Puebla against his will. He had come here with a large lot of improved agricultural machinery, including the latest inventions in mowers, reapers, threshers, etc., in company with several other Americans, to instruct the natives in their use. His companions had left the country, but he had not the means with which to get away, and was, to use his own expression, "in a frame of mind."

"It is just a holy terror," said he; "these people have just about worried me to death. Here I 've been here more 'n a year, and how many mowers and reapers do you think I 've sold? Well, sir, I ain't sold one! These Mexicans are just a caution to snakes! Why, they come here and get one of my machines, and take it out on their plantations and smash it all to pieces, and then say 'tain't good enough for 'em. And the worst of it is, I have almighty hard work to get the pieces of that machine back to the shop. No machinery is good enough for 'em. Here are Mexicans who 've lived all their lives without seeing an improved machine of any kind, and who 've ploughed their land all their lives *with a stick*, that are just too wise to learn how to do anything.

"A few men have got all the land, and they keep it. The working people are only slaves, the best of them get only a quarter a day, and find themselves. It's no wonder that everybody's a thief. Why, these beggars are so poor that they never have twenty cents with 'em over night. Not a thing is wasted, the last bone and scrap of meat, and bit of old rag, is carefully saved; why, they've even driven the buzzards out of the country! A vulture would be ashamed of himself everlastingly if he ate and lived among the filth these Mexicans do."

It happened that we saw some vultures sitting on the trees of the Paseo the same afternoon my Chicago friend conveyed this information to me; but he insisted that they were imitations, — that a live one could not exist there.

"This government," continued he, "does everything to encourage the *hacendado*, or proprietor of large estates, to hold

MEXICAN PLOUGH.

on to his large tracts of land, and to discourage every attempt of a stranger to locate here. There was a Frenchman, who put up a flouring-mill and commenced to do a big business. The millers here became jealous, and the next thing that Frenchman knew, the government clapped a tax of $200 on each set of buhrs; and now that man's just settin' in his ruins, looking wise. And steal! what you see lying about here that these people have n't gathered in, you may set down as not worth stealing. They're on the lookout for something all the time, — and they generally find it, too.

"Look at the haciendas all over the country; they are like forts, not built for protection from Indians, but from their own

people. Every night the great gate is locked, and whatever is behind those stone walls has to stay in, and whatever is outside has to stay out, till morning. Everything on the farm is taken in under cover, not even one of those old wooden ploughs, patterned after the first one Noah patented in the ark, is left in the field; at sunset you will see the laborer driving home with the plough-beam over the yoke, and in the morning he brings it out again. If one of our American ploughs was left in one of these fields over night, it would be taken to pieces and distributed over the country in forty places, *and half of it pawned.* And as for a harrow, they would n't leave a tooth in it!

"Speaking of ploughs, what do you suppose these brutes do with one of our Yankee ploughs when they get it? Why, the first thing they do is to *saw off one handle*, and make it as near as possible like their old wooden ones; then they do everything they can think of to break it, and fall back on the wooden institution which they 've used a thousand years. It 's just a holy terror! Here I am, with a stock of machinery that would set up a first-class establishment in the States, that is just rusting to pieces; and these people are only waiting till I 'm tired out, when they expect to get it all for nothing. When you 've been amongst 'em a year, as I have, and have seen what sons of Satan they really are, you 'll change your mind about 'em. You tourists, who only meet 'em on the street, and see 'em grinning and bowing and shaking hands, and embracing you as though you was a long-lost brother, and telling you their house is yours, and their wives and daughters, and everything they own, is at your disposal, you only see one side of 'em. I 've seen *both* sides. I 've tested their hospitality, and have found out that there ain't a bit of the real genuine article in all Mexico."

The horse railways of the city and district have proved quite profitable, a single short line within the city limits paying three per cent a month. There is a long line in course of operation to Matamoras Azucar, a large town in the *tierra caliente*, distant a day's ride by diligence to the southward. It is a branch from this that runs to Cholula, reaching it in an hour's ride, and at a cost, first-class, of two reales, second-class, fifteen cents. There

is little variety of scenery, and nothing of great interest until the hill, or pyramid, is reached. To understand the historic and traditional value of this pyramid, we must refer to the historian. After mentioning the gods of the ancient Mexicans, he says: "A far more interesting personage in their mythology was Quetzalcoatl, god of the air, a divinity who, during his residence on earth, instructed the natives in the use of metal, in agriculture, and in the arts of government. . . . . Quetzalcoatl incurred the wrath of one of the principal gods, and was obliged to quit the country. On his way he stopped at the city of Cholula, where a temple was dedicated to his worship, the massy ruins of which still form one of the most interesting relics of antiquity in Mexico."

QUETZALCOATL.

The car stops at the foot of this monument of the past, but you might need to be told what it was, if you had formed any preconceived ideas of it from reading in volumes of authors who have never seen it. At present it is not a true pyramid, and so many years have elapsed since its construction that it appears scarcely more than a natural elevation, or a hill that has been squared in places and levelled at the top. But the evidence of its artificial construction is plain enough to any one who will thoroughly

examine it, for he will find sun-baked bricks and mortar wherever any portion has been exposed. Whether these bricks form the entire structure is an important question for archæologists to answer; the only way to settle it is by driving a tunnel beneath it, at the base, from one side to the other. Various attempts have been made, by excavating, but have not resulted in penetrating much beyond the surface; on all sides, however, are seen these great bricks, and, until the tunnel is run beneath it, we must assume that the entire structure is artificial, and not a natural hill faced with brick. Its height is nearly two hundred feet, and at the summit is a church, reached by steps built into the irregular sides of the hill, the path winding up the western slope, past perpendicular ranges of adobe, beneath various pepper trees, and through green bits of pasture which cover the ancient playgrounds of the Cholulans.

In the cutting of a new road, at one time, a square chamber was revealed, it is said, built of stone, with a roof of cypress beams, and containing some idols of stone, the remains of two bodies, and several painted vases. Humboldt gives this pyramid the same height as that of the Pyramid of the Sun, at Teotihuacan, and says it is three metres higher than that of Mycerinus, or the third of the great Egyptian pyramids of the group of Djizeh. Its base, however, is larger than that of any hitherto discovered by travellers in the Old World, and is double that of the Pyramid of Cheops. It is, doubtless, as he claims, entirely a work of art, but it is celebrated more for its breadth of base than its height.

Its situation on the Mexican table land is at a distance of seventy miles south-southeast of the city of Mexico, and at an elevation of 6,912 feet above the level of the sea. Humboldt, who used simply a barometer, gives its height as 164 feet; while the measurements of some officers of the American army, made by means of the sextant, determined its true height to be 204 feet, and its base 1,060. The breadth of its truncated apex is 165 feet, and here, where the ancients had erected a shrine to Quetzalcoatl, — "God of the Air," or the "Feathered Serpent," — the Spaniards later built a church under the patronage of the

Virgen de los Remedios. This church is in excellent repair, the interior beautifully frescoed and gilded, and the votive offerings that adorn the walls are many of them new, and show that the people still retain their faith in the Virgin of this shrine.

Rising from the centre of the fertile and extensive plain of Cholula, this ancient pyramid, with its modern capstone, can be seen from the distance of many a league. Most beautiful is the landscape spread out at its base! long, level fields of corn and maguey are on every side; villages of low mud huts rise hardly above the tops of the corn, so humble the first and so rank and luxuriant the last. Conspicuous here are the churches, that tower like giants among pygmies above the lonely cabins, adorn every hill, and claim attention on every side. They are the parasites that have sapped this fair land of its life-blood, — have gathered to themselves the wealth of the natives, and kept the country poor and wretched for three hundred years. Before Cortés drew the accursed trail of his army along this beautiful country, Cholula, it is related, possessed a population of forty thousand souls; now the little village scarce numbers six thousand. In his second letter to Charles V., Cortés describes the town as containing twenty thousand houses and four hundred "mosques," or temples. Gone are the magnificent temples and sculptures that adorned its site; the books that recorded their traditions were destroyed by order of the Spanish priests, and only the ruins of their mighty teocalli, with the paltry and contemptible temple of the conquerors, perched like the parasitic mistletoe on the rugged oak, remain to attest their greatness.

The village of Cholula lies crouched at the base of the pyramid. The largest of its religious edifices is the convent, more than two hundred years old; in its spacious court several thousand men could be quartered; it has shared the fate of many another of its order, and has been neglected, perhaps confiscated, but is now being again brought into use. Perhaps I should not have noticed this, had it not been for a severe rap these Catholics have administered upon Protestant knuckles, in the shape of four large paintings in the chapel. The first rep-

resents, by a painting twenty feet square, the martyrdom of St. Nicholas and eighteen companions by the Calvinistic Protestants of Holland, on the 9th of July, 1576, "for defending the bodily presence of Christ"; canonized by Pius IX. on the 29th of July, 1867. Two more pictures are of two parties of saints, who were murdered in 1597 by the Japanese, and canonized in 1862; one of these was the "Protomartir Mexicano," San

PYRAMID OF CHOLULA.

Felipe of Jesus, with twenty-two companions. He is the patron saint of the city of Mexico, which was put under his protection in 1629.

Mexicans generally are the reverse of intrusive, and never, as a rule, admit you into the sacred privacy of their families; but a party of ladies from Puebla, who had come down here to attend mass, and have a little picnic at the same time, made my acquaintance, and invited me to join them.

They would never have done so had I not excited their curiosity by carrying a butterfly-net, which, as it was the first they had ever seen, prompted them to speak to me, their curiosity having overcome their timidity. A naturalist, especially one hunting for birds and butterflies, is looked upon with pity and compassion, and these ladies shared the general impression, — that a man who went about with a gun and insect-net needed looking after, — and took me under their care. It was the 1st of July, and they were going to celebrate mass, and if I would go with them to church they would later accompany me in my search for antiquities. So I went to church, gun, net, and all, and took a back seat, while my four fair companions knelt at their devotions. The church was gayly decorated, the kneeling figures, draped in *rebozos*, were picturesque, but the service was long and unintelligible; so I took advantage of the absorption of my friends, and slipped away. I wandered all day through the fields and in the suburbs of this old city, and met with no one who offered to molest me or obstruct my path, though this section has a reputation as a rendezvous for robbers.

In truth, as mentioned above, the Mexican has either great respect, or great contempt, for a man engaged in so-called scientific pursuits. A certain German traveller also notices this, and mentions how it aided him in securing the passage of his effects through the custom-house: "*Este cavallero es botanista*, cried the director, giving an order to leave my things unmolested. As far as I know the Spanish-American nations, scientific occupations are held in very high esteem amongst them. It may be fairly said that this feature, originally belonging to the Spanish nationality, has been greatly developed and generalized, as to the colonial population, by the travels and highly scientific researches of Humboldt."

Be this as it may, I know that the name of *naturalista* has often proved an open sesame to places I should not have otherwise had the privilege of visiting. It was explained to me, by a friend who has travelled extensively in that country, and who never carried anything in the way of a weapon of defence,

that the *Mexicano* looked upon a man in pursuit of birds, insects, or antiquities as "a confounded fool, a crazy man," — or *un lunatico*, — and, as they never kill or injure such a creature, whom they regard as harmless, he may expose himself with impunity. This explanation was not tendered me until after my return from my first Mexican trip, or I should not probably have felt flattered by the innocent attentions of the fair señoras and señoritas, who were so much interested in an *Americano* carrying a gun and a butterfly-net.

XXV.

SIX WEEKS IN SOUTHERN MEXICO.

THE principal town of a broad and fertile valley running down from Puebla is Tehuacan de las Granadas, noted for the abundance of its grapes and pomegranates. Before the Spaniards conquered Mexico it was one of the most cherished and frequented sanctuaries of the Mexicans, and known as Teohuacan, or dwelling-place of the Miztec gods. Its houses are of stone, in the Spanish style, with grated windows and open courts; its suburbs are pretty gardens surrounded by green fields of alfalfa traversed by vine-bordered lanes. Above the town, a league or so away to the east, is a range of hills, the Cerro Colorado, famous in revolutionary annals as having been held by General Teran, an insurgent chief, for three or four years; a congress, even, was appointed here, and a commission charged by the United States to inquire into the causes of the revolution of 1810, here held interview with that body.

A diligence runs to Puebla daily, but with little patronage, as a narrow-gauge tramway, a government venture, extends south from Esperanza on the Mexican Railway. This tramway is well built and economically managed; the cars are drawn by mules, and connect with the up and down trains of the road from coast to capital. Nearly all the railway lines of Mexico are mainly north of the capital, connecting it with the United States, though in very truth the government is now most anxious to extend its system southward. But no American was found bold enough to undertake such a venture, requiring vast capital and consummate engineering skill for its development, until the right man appeared, finally, in the person of our great and highly-honored Ex-President, General Grant. He had engaged

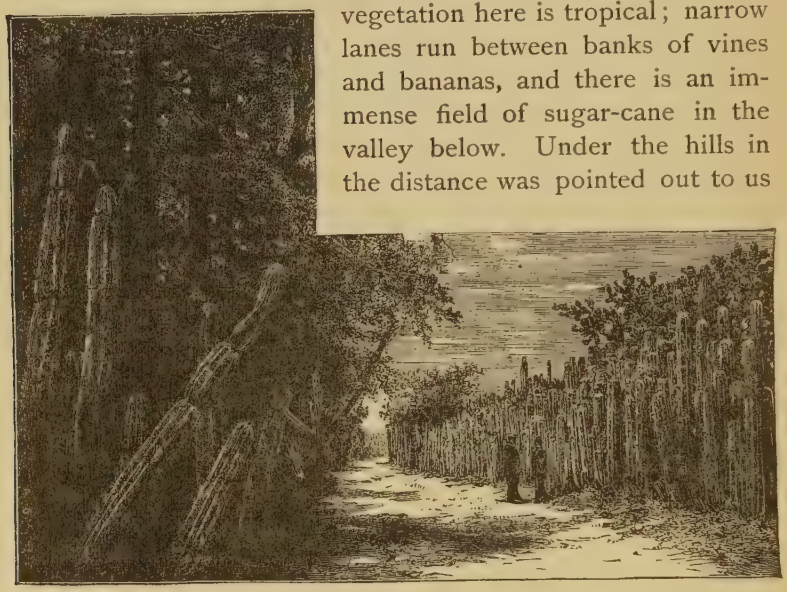
to continue the Mexican system southward to Tehuantepec, even perhaps to Guatemala, and beyond, to South America.[1]

It was to investigate the resources of the region to be traversed by the "Mexican Southern" railroad, that my companions and myself undertook a trip, horseback and muleback, that extended eventually over a thousand miles, and through the most fertile portions of the great State of Oaxaca.

It was a Sunday on which we arrived at Tehuacan, and everybody was astir; for a bull-fight was in progress, most of the stores were closed in consequence, and the sermons of the conscientious priests held over till evening. So we stopped for the night at the Hotel Ferrocarril, and there commenced a preliminary skirmish with fleas, that was kept up, with more or less loss of blood on either side, for a month. The next morning, which was clear, cold, and starlit, we sallied forth from the hotel, lighted into the diligence by flaming torches of tarred rope. Daylight showed us a dry, almost barren plain, descending rapidly in the direction we were going, with haciendas and villages in sight far away under the hills. We changed mules, putting on eight fresh animals, at the hacienda of Nopala, and got breakfast, towards noon, at a town of two houses, called Venta Salada. We encountered great crowds of Indians here, all going to work. We met them all day, intent on the same mission — of going to work, — but which they never seemed to reach. In fact, there did not seem to be any to do; no fields to cultivate, — at least within our vision, — and no wood to cut, or charcoal to burn. The road was all the way descending, and most horrible to travel, the coach first on end, then on its side. The whip, with its twenty feet of lash, trailed at the side like a great snake, which now and again leaped forth and stung the mules to active effort. Hills and valleys were covered with thorny acacias and cacti, and no other vegetation occurred for the trip, except where a rare brook was found, or a small canal led the water to a narrow valley. About noon of that hot and stifling day we passed a great stone post that marked the limits of the State of Oaxaca, and entered the town of San Antonio.

[1] This enterprise was a most disastrous failure.

Here occurred a great fight between Porfirio Diaz and the French, in 1863, in which Diaz was badly whipped. The village, a few adobe huts with thatched roofs, seems to have suffered severely, the walls of some old buildings being well peppered with bullet-holes. We were reminded that we were in the earthquake region by the church bell being housed beneath a thatched tower by the side of the building. The vegetation here is tropical; narrow lanes run between banks of vines and bananas, and there is an immense field of sugar-cane in the valley below. Under the hills in the distance was pointed out to us



HEDGES OF CACTUS.

the town of Teotitlan del Camino, where, some twenty years ago, the Liberal General Mexia (whom we met in Tehuacan, a fine old gentleman) was defeated by the clerical party. This section fairly bristles with revolutionary points. It would seem that the people wished to utilize its worthless territory somehow, and so put up a fight at every available place. To reflect how the Mexicans have stamped over this desert region, for the express purpose of killing one another and kicking one another out, reminds one of the man who fenced in a stony piece of ground,—so that his cattle should not get in and starve to death.

After a mile or two through cultivated fields, we again took to the hills, and jolted up and down through the same eternal stretches of cactus. These were of every shape and variety, chiefly of the Candelabrum species, some of them full thirty feet in diameter. The very expressive name of this cactus is *organo*, or the organ, since it grows straight up with fluted, hexagonal columns, and when many of them are together has a faint resemblance to an organ with its pipes. Hedges are made of them which are very durable and easily induced to thrive. The cacti are not wholly worthless, as jackasses feed on them when in straits for food. Certain species bear edible fruit, and mules and donkeys find within them reservoirs of water, and even the goat will not hesitate to exchange for them his favorite fodder.

The only hacienda after San Antonio was Ayotla, a small one, some four leagues distant. After this we passed San Juan de los Cues, four leagues from the end of the diligence route, where is a collection of huts and the finest trees we saw anywhere. This place is in a pass between high cliffs, and takes its name from some artificial mounds, one of which is very prominent on the right of the pass. Beyond this we drove down the river basin, crossing a broad stream several times, and drove into Techomavaca at five, having been fourteen hours in the diligence, through a hot, weary day. Techomavaca may be taken as a type of a Mexican country village, built out of raw material, straw and mud, in the form of a square; the latter, indeed, is about all there is; it comprises nine tenths of the town, with a narrow rim of houses and huts. It must have been a Mexican general who, commanding a force of one man, told him to form himself into a hollow square, for that is the aim and end of all builders in this country. Techomavaca, says an old writer, is an Hispano-Indian word, meaning, "The cow will eat thee." We found here four horses and a mule, which had been telegraphed for to Oaxaca, and sent up to meet us. They were very small and scraggy, but tough and lively, and we mounted them at five, sharp, the next morning.

Leaving the town, we bade adieu to all refreshing vegetation, and, after crossing a broad river with several channels, entered

a landscape similar to that of the day before, — red sandstone hills, yielding nothing but cacti and *nopals*. There was some grand scenery as we reached the Rio Grande, where cliffs, three hundred feet high, towered above our heads. It grew hot as the sun got up and had a square look at us, and the dry landscape of rocks and cacti seemed to sizzle in the heat. At a small hut we got a drink of mescal and some tortillas, and a league farther on passed three other shanties with native rum, or *licor del pais*, for sale.

Toward midday a great field of sugar-cane enlivened the scenery, occupying a narrow valley made fertile by irrigation, and after that appeared the large sugar-works of the estate of Guendolain, with coco and fruit trees grouped about them. The hospitable proprietor invited us to take breakfast with him, for he was a Mexican, and consequently generous to a stranger. This hacienda occupies the best portion of the only cultivable land in this region. It is the lowest point reached on the trail, and so hot that the people say they would rather pass through purgatory than through the vale of Guendolain.

The afternoon was passed in threading the same bad roads and narrow, gullied trails, and at its close we reached the town of Dominguillo, the largest between Tehuacan and Oaxaca, and containing less than fifty families, housed for the most part in bamboo huts. There was a meson here, or house for the entertainment of man and beast. The rooms all opened into a corridor, with rarely a single window, and contained each two hard board beds, a chair perhaps, and an abundance of fleas. An amateur bull-fight was in progress when we arrived, and all the inhabitants were indulging in a *fiesta*, in honor of some saint. A small cattle-pen was turned into a bull-ring, and a calf was let loose to be tormented by the boys with sticks and sarapes. Later on, a bull was driven in, girths fastened about him, and a man mounted on his back. The assembled men then goaded him, and he fought them fiercely, trying at the same time to get rid of his burden. Finally, becoming frightened, the bull bolted for the bars, and got half-way through, but the men pulled him back and incited him to fresh charges. When his spirits failed,

they resorted to a novel expedient. A man bit his tail! It had the required effect, — the bull let fly a kick that sickened that unhappy man, dashed at the bars again, and escaped.

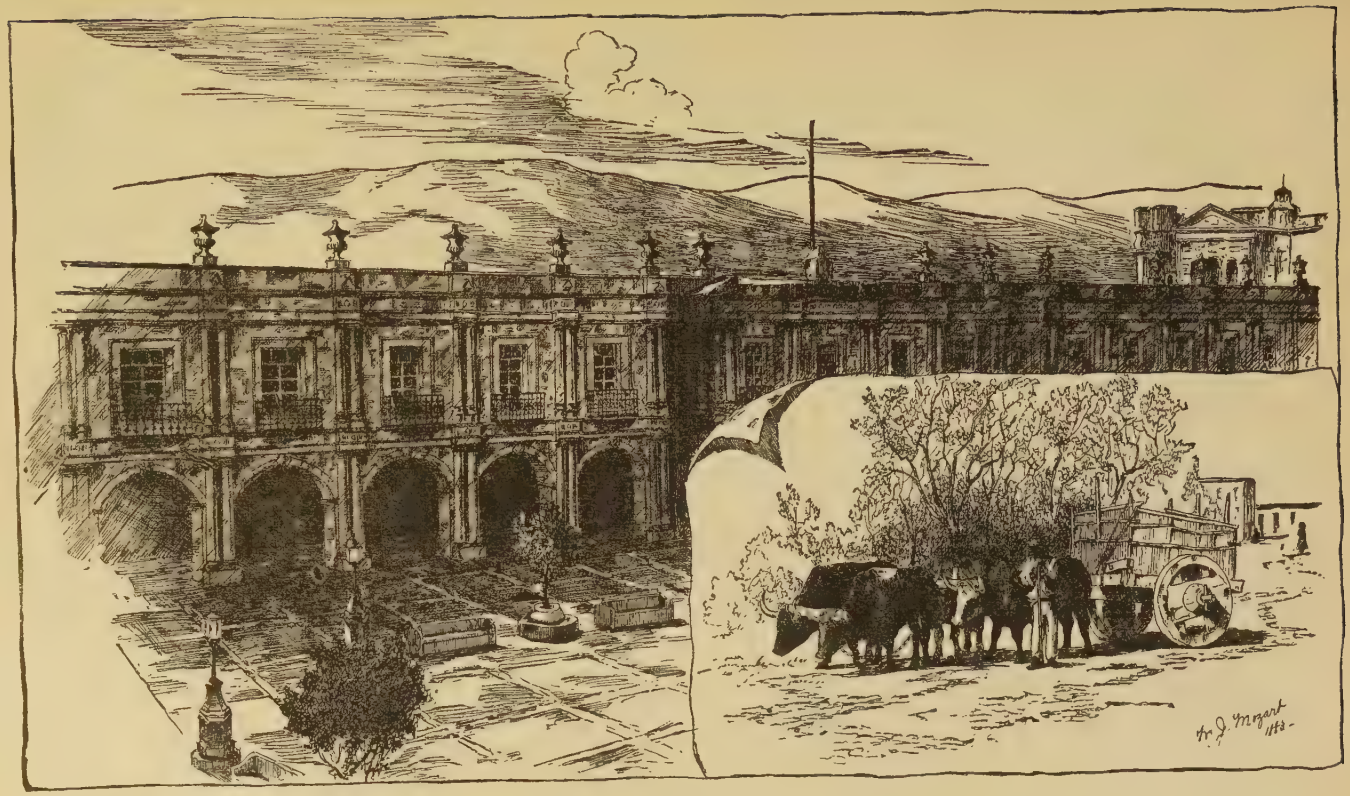
Crowds of dirty women surrounded the fences, and a dozen drunken musicians drew doleful strains from battered instruments. Now and then, some ragged boy set off a rocket, — the Mexicans always send off their fireworks by daylight, — and everybody was industriously engaged in getting drunk. They lay outside all night in stupid inebriety, all — as one of them told us — "for the glory of God!" and we passed them next morning as we set off at daylight. There was an elevated platform, with seats for the *élite* and fashion, — a dozen or so of Indian ladies, who, we could not fail to notice, wore no stockings, though they spread most gorgeous sunshades.

Half the day previous we had seen a white line drawn across these red hills, which was the road we reached that morning. It seemed interminable, for it climbed from hill to hill, turning and twisting, but ever ascending. Large gangs of Indians were at work trying to render the roads passable for a carriage for General Diaz, who was soon to be installed Governor of Oaxaca. As such a vehicle had never yet passed over those roads, it was anticipated that the noble General would experience a lively jolting. As we reached somewhere near the summit of the higher ridge, after long hours of toil, we had behind us a last view of Orizaba, its cone of snow rising above the mountains and over the long interval of hills and valleys. It is a speaking commentary upon the necessarily tortuous roads of this mountainous country, that this volcano should still be in sight after three days' travel.

Four leagues from Dominguillo we reached a pass in the hills, locally celebrated as the spot where an untutored Indian, with a handful of men to help him, kept at bay three thousand French troops, by mounting a few cannon at a point that swept the road. High above the trail rise the stupendous cliffs, backed by high hills that prevent a road from being made in any other place. After taking breakfast, in a small Indian hut, of tortillas, frijoles, and mescal, eaten off the dirty floor, we

ascended yet steeper hills for some miles, and reached Salomen, a group of huts in the centre of grassy slopes and oak-covered hills. As the hot, dry country is changed into the warm and moist, the ungainly cacti gradually merge into beautiful palms, and the landscape is charming. After three days and a half of cactus-covered hills, the sight of trees and grass was very inviting. The country had completely changed, and we galloped through extensive oak woods for many a league, with noble views of an ocean of hills, along the ridges of which we picked our way, to a place called Carbonera, containing solely a house of dried mud and a cow-yard. An Indian girl was asleep on the mud floor, with a naked baby, and her we roused, and begged to get us ready something to eat. After cooking some eggs, frying over some frijoles, and warming up some cold tortillas, she washed, with the same water the eggs were to be boiled in, some coarse earthen dishes and her hands at the same time, and then, spreading the repast upon the floor, stretched herself out in her corner and snored, while we fell to eating, like hungry men, as we were. One of our tired and exhausted carga mules here had the blind staggers, and one of our horses went lame.

Leaving this place, we galloped down the hills into the valley of Etla, reaching a place called Huitzo at dark, just before a thunder-storm broke over the hills. We were now in the territory of the Miztec Indians, inveterate enemies of the Aztecs in olden times, whom they always slew at sight, when they could. The town is situated at the head of the valley, which, as we went southward next morning, we found to increase in area and fertility. Half-way down, it is crossed by a line of artificial hills, one group of which, known as *Los Cerritos de la Peña*, we visited. These were at least a dozen in number, conical, oval, and quadrilateral, within an area of a few acres. We examined them carefully, but found nothing beyond a few shards of pottery; no implements even, though ornaments of gold, silver, and bronze have been discovered here. They lie near the town of Etla, on the eastern foot-hills, near which the golden throne of the last Miztecan king is said to be buried. Two great tribes of Indians occupied this valley in former years, the Zapotecs and Miztecs,



GOVERNOR'S PALACE, OAXACA.

who fought a terrible battle near this spot, in which the latter were beaten. A curious fact was brought to our notice here, — that, while at Huitzo the people speak the Miztec language, in Etla, only four leagues distant, they speak the Zapotec.

Bidding adieu to our courteous guide, Don Jesus Filio, we reached, after hard riding along magnificent fields of corn, through which the Etla River runs, the outskirts of the city of Oaxaca, where we found Don José, our *compañero*, an ex-colonel of artillery, awaiting our arrival at a cross-road, whence he escorted us to the Plaza and to the Hotel Nacional. There we footed up our first week's journey and found that in five days' diligent travel we had accomplished but two hundred and twenty miles, divided as follows: by tramway, first day, thirty miles; by diligence, second day, sixty miles; by horseback, third, fourth, and fifth days, one hundred and thirty miles.

Guaxaca (Oaxaca, pronounced *Wahháka*), says a writer of nearly three hundred years ago, "is a Bishop's Seat, not very big, yet a fair and beautiful City to behold, which standeth threescore leagues from Mexico in a pleasant Valley." The seat of this ancient bishopric is a triple vale, a trefoil in shape, with the capital city, Oaxaca, at the stem. From the north leads in the valley of Etla, with its broad river meandering through a billowy sea of corn-fields. This river turns south as it reaches the city and runs towards the Pacific, through the valley of Ejutla, while the third vale, known as Tlacolula, trends westward. Whichever way the eye may wander, the view is bounded by hills. The city itself is built at the foot of a hill, as it slopes to the river, a broad, flat-roofed plain of stone buildings, above which, every few squares, are thrust up domes and towers, of cathedral, churches, and convents, with the various plazas indicated by dark-green masses of trees.

Each valley is about twenty miles in length and from two to four miles broad, and from the sterile hills that enclose them to the lowest depression of the basin the soil gradually increases in fertility. This valley, or conjunction of valleys, if not the objective point of the Mexican Southern Railway, is at least the most important on the line. It is the centre of the State,

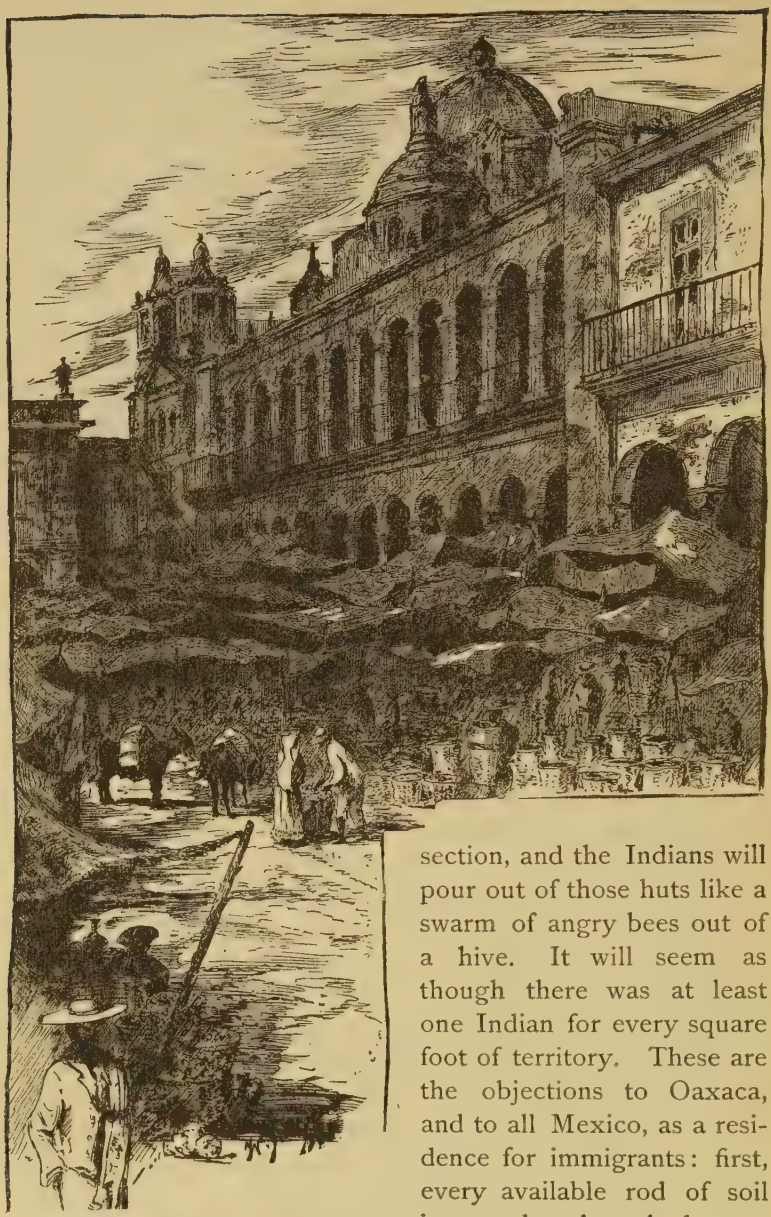
contains the richest land and largest sugar plantations, and its city is the most considerable south of Puebla and the capital. The valleys, all of them, present a delightful blending of the vegetation and productions of different regions, for the high altitude of the upper lands (5,000 feet) combines with the almost tropical climate in such a manner that the fruits of every zone may be gathered here, — cotton in the southern borders, alfalfa, arnatto, rice, sweet potatoes, cacao, sugar-cane, beans, pulse, maguey, corn, potatoes, wheat, vanilla, pecans, almonds, oranges, coffee, — in fact, there is little doubt that the whole list of tropic, of semi-tropic, and of temperate fruits and vegetables may be well represented between the southern and northern valleys. It is claimed that the hills are covered with valuable woods, such as mahogany, cedar, rosewood, royal palm, and an infinite number of plants valuable to the *materia medica*. But though all these trees may have been indigenous here, most of them have long since been cut down and destroyed; for in above one thousand miles of wanderings we did not see any extensive forests of valuable timber or cabinet woods.

COFFEE.

From the hills immediately above the city of Oaxaca one looks down upon as fair a scene as he could wish, — upon smooth and verdant fields of cane and corn, dotted with white stone haciendas and with Indian hamlets springing up at the base of every

hill. About the villages and the buildings of the sugar estates are trees, and across the valley of Tlacolula a line of giants stretches from hill to hill; but, except among the distant sierras, you cannot see any not planted by the hand of man; there are few natural groves or forests. This scarcity of trees is doubtless owing to the fact that this region has been inhabited almost from time immemorial. To this, again, we may trace the thorough cultivation of Southern Mexico. There is not a valley, vale, or hill that is not or has not been cultivated, wherever there is a chance to scrape with a hoe, or prod with a sharpened stick. The more level stretches, the great basins filled with alluvium, are owned by rich *hacendados*, or landowners, and the Indians are forced toward the outskirts, where the hills lap over into the valleys, and thence they carry their little gardens and fields of corn up toward the crests. Not a foot is left untilled; not a rod of those brown, denuded hills covered with a few inches of soil that is not occupied.

It was an agricultural race that the Spaniards found in possession of Mexico, — a people that had held and tilled the soil for hundreds of years before the white man heard of the New World, — not a savage horde that subsisted by the chase. As a consequence, we find every portion of this southern republic susceptible to the influences of the hoe and plough carefully and exhaustively cultivated. One may ride through leagues of territory, with an Indian settlement only at long intervals, and wonder at the thriving appearance of the fertile fields, in decided contrast to the parched and barren hills. Two things seem strange: first, where the people are who till these fields so thoroughly; and, secondly, how they can cover so much territory by day and occupy so little space by night. It is only when an immigration agent comes along, or some one desiring to secure property, that one obtains a conception of how closely human beings can stow themselves. A village of one hundred Indian huts may contain two thousand people. And no one of these huts would be considered worthy of use as a donkey-shed in the North. But let it be noised through their town that there is any movement on foot for introducing immigrants into that



GENERAL MARKET, OAXACA.

section, and the Indians will pour out of those huts like a swarm of angry bees out of a hive. It will seem as though there was at least one Indian for every square foot of territory. These are the objections to Oaxaca, and to all Mexico, as a residence for immigrants: first, every available rod of soil is owned and worked; sec-

ondly, it is too far from any great centre for an outlet for productions; thirdly, they must compete with Indians, with whom a pair of trousers is an unheard of luxury, who sleep on the ground, eat from a gourd, and work for twenty-five cents a day.

From the earliest times, Oaxaca has been looked upon as El Dorado, the traditional land of gold. The chief tribute to Montezuma came from the sands of its rivers, and the Spaniards were told that the unconquered Indians living there guarded vast and unknown treasures. But this was in the time of Cortés, when the conquerors were sending out in every direction for gold. Believing it to be what it was described to him, Cortés arrogated to himself the title of Marquis of the Valley of Oaxaca, and the faith in its riches has been maintained, though without sufficient reason, to the present day. In the catalogue of its natural wealth are included silver, gold, copper, lead, iron, slate, and coal, and perhaps quicksilver and precious stones. We met here several very intelligent gentlemen who owned mines of both gold and silver, and I take pleasure in here recording our indebtedness to Señores Romero and Endner, of the Oaxaca mint, and Don Constantino Rickards, a most generous and hospitable Englishman, who has lived in the country thirty years, and possesses valuable mineral property.

Antequera, the Beautiful, was the ancient name of the capital, now known as Oaxaca of Juarez. It contains twenty-six thousand seven hundred inhabitants, of which number, judging from the proportion seen at church and in the streets, more than twenty thousand are Indians. Like every city in Spanish America, it has its plaza, or central square, adorned with a fountain and shaded by trees, with seats for the people and a music-stand for the military band. Facing the plaza is the cathedral, with its façade guarded by many saints, disposed in niches, some of whom have been sorely shaken by earthquakes, that were once the scourge of this city, and may be the cause of the air of general decay, or rather of restoration, that pervades the place. There is scarcely a block that has not an unfinished building in it; and as to the streets, they seem to be maintaining a perpetual and running fight with the streams that plough them on

their way down from the hills. Aside from deep gutters that cross the main thoroughfares, heaps of filth and refuse obstruct the way, making the city, as it appeals to at least two senses, the sight and smell, more objectionable even than the city of Mexico. The houses are low and massive, of the style of architecture that prevails in all Spanish cities in Mexico, with walls of stone and grated windows. In situation, the city is superb, commanding the three grand and glorious valleys; and perhaps, under the administration of General Diaz, it may attain to the acme of healthfulness and beauty which its situation, five thousand feet above the sea, and its climate, should give it.

The place most sought by us when in the city was the plaza in front of the municipal palace, which, on Saturdays, was the resort of the various Indian tribes living among the hills, who came in and took undisputed possession of it and the adjacent *portales*. The Mexican market-place has been described by me in previous chapters, but I cannot refrain from again alluding to the *portales*, which usually surround it. If there were any that surpassed those of Oaxaca in length and symmetry, I think those of Yucatan are entitled to honorable mention. Beneath these arcades the affairs of the huckster and small dealer are generally carried on in the morning; at noon their shade tempts the town vagabond to slumber there, and at night they afford a lurking-place for the evil-minded lepero.

The most famous building here of recent times is the Institute of Oaxaca, in which college were educated Diaz, Romero, Juarez, Mariscal, and many other Mexicans who have had a widely extended reputation. It exercises its beneficial influence over five hundred students, and the natural result of it is shown by an enumeration in the city alone of over seventy lawyers and seventeen doctors. In the library of the Institute are fourteen thousand volumes, some of note and rarity, principally the spoils of the suppressed conventual establishments of the State. The favored students wander about cool corridors, and in a neat little garden in the patio, where are several objects of Indian antiquity, a harpy eagle, and brilliant macaws, which lend an added interest to this spot, made sacred to Mexican youth by

its association with the names of their famous countrymen previously mentioned.

The chief of our expedition was provided with letters to all the principal men of Oaxaca, and while awaiting permission from the authorities to visit the Indians of the sierras, we made a side trip into the valley of Ejutla, southward. After examining the little known ruins of Monte Alban, and visiting an old convent, where the patriot Guerrero was shot, in 1831, we ended our journey in this direction at the town of Cuilapan, formerly a great city of the Miztecs, and containing a large adobe mound, in which copper axes, mirrors, and golden ornaments have been found. Even now, the inhabitants of this place speak the Miztec tongue, while at Zaachila, a near town, the Zapotec is spoken, and farther up the valley, nearer Oaxaca, is a small colony of Indians whose language is the Aztec. This little body of aliens, sandwiched in between Zapotecs and Miztecs, is doubtless a relic of the great Mexican invasion of the fifteenth century, when the armies of Montezuma, after penetrating as far south as Tehuantepec, were driven back by the allied kings of the country. So rich was this valley at the time of the Spanish invasion that the soldiers of Alvarado had the natives make for them spurs of solid gold, which were worked with great skill.

Many are the stories told here of those early times, so numerous that half a volume might be filled with them, and so fascinating that I reluctantly pass them by. But we will leave antiquities and traditions for a while, and glance at an ancient industry, which, originating here, has made this region famous the world over. In this same village of Cuilapan we found ourselves in the original home of the cochineal, where, enclosed by hedges of the *organo*, were little gardens of the *nopal*, or cochineal cactus. The anciently used *kermes*, or "scarlet grain," was replaced by the cochineal insect, which furnished the brilliant dyes, crimson and scarlet, after the conquest of Mexico by the Spaniards. This precious dye — more valuable once than at the present day — is obtained from the dried bodies of the female cochineal (*Coccus cacti*), which feeds on the leaves of the *Opuntia cochinillifera*, and other cacti closely allied to the prickly-pears, and called

nopals and *tunas*. The insect is so small that it is calculated that it takes above seventy thousand in the dried state to make a pound. It always remains attached to the spot at which it was hatched, and its body grows rapidly as it absorbs the juice of the cactus, until legs, antennæ, and proboscis can hardly be distinguished by the naked eye. The female, which alone produces the dye, is detached from the leaf just prior to the escape of the young from the egg, when she contains the greatest amount of coloring matter, and killed by being plunged into boiling water, or placed with heaps of others in hot ovens.

Since the discovery of aniline dyes cochineal has steadily fallen away in value, until now it hardly pays even the Indian to raise it. It is now worth but ten dollars the arroba, but formerly brought one hundred dollars, when immense fortunes resulted from its cultivation. The Indians affirm that Oaxaca was the original habitat of the cochineal, whence it was taken to Guatemala and the Canaries.

NOPAL AND COCHINEAL.

XXVI.

THE WONDERFUL PALACES OF MITLA.

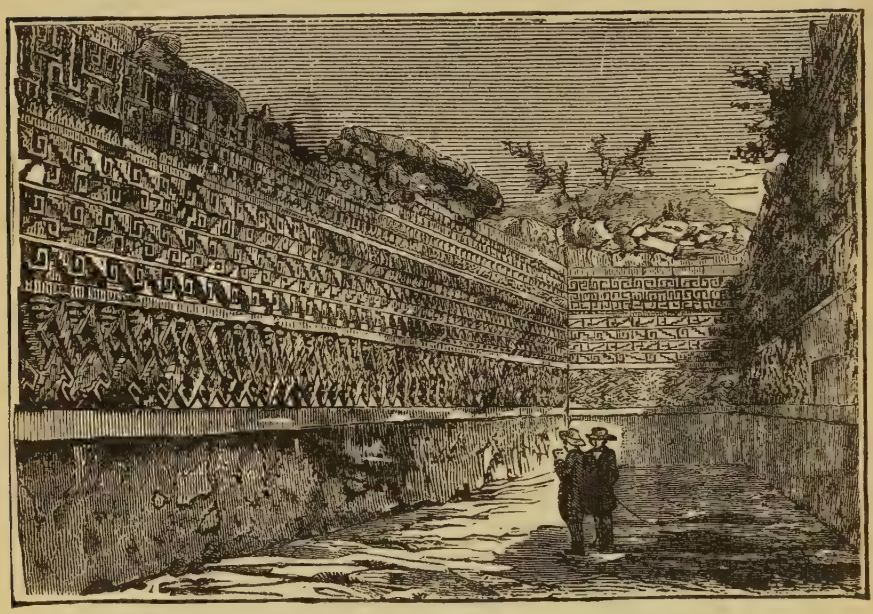
I TRUST my readers will pardon my frequent allusions to antiquarian research; but, craving the modern Mexican's pardon, the *old* vastly predominates, in certain portions of Mexico, over the *new*.

Ruins without end are scattered over these hills and throughout the alluvial plains, indicating the vast number of inhabitants that must have been at one time, or in successive ages, concentrated here. Those spanning the valley of Etla have been already mentioned; but the great aboriginal mounds are equally numerous in that of Ejutla, while immediately above the city of Oaxaca are the extensive mounds and fortifications of Monte Alban, that proclaim the former existence there of a wonderful civilization. These, though examined by me, our space forbids me to more than mention, but in the valley of Tlacolula, twenty miles southeast from Oaxaca, is the crowning achievement of those ancient peoples, in the palaces of Mitla, the former abode and the places of burial of the Zapotec kings. No ruins in Mexico, and probably none in America, are more elaborately ornamented, in their peculiar style, than these.

Lying between two great groups entirely different in the architecture of their original buildings, this Mitla assemblage of stone structures possesses peculiarities belonging neither to those of Yucatan, to the northeast, nor to those of Central Mexico, to the northwest. Though from its geographic position it should form a connecting link between the two great systems, yet it does not, but stands out peculiarly conspicuous for its singularities of architecture and ornament.

When our party found itself within twenty miles of Mitla, and with a couple of days' leisure, it decided to go there at once.

But "at once" being words not found in the Mexican vocabulary, we were not surprised to find, on assembling in front of the hotel at the time appointed, that the horses we had engaged were not there. After a protracted search, we found our mozo, and wrathfully demanded why he had not returned to inform us of his inability to furnish the horses. "*Para que?*" said the



GRAND HALL, MITLA.

astonished mozo. "What for? Was it not sufficient for you to know that I was not there?"

Late in the forenoon he made his appearance with an antiquated *coché*, drawn by three horses and two mules, and we rode out through the gate of the city in triumph. At the gate and beyond we encountered hosts of Indians coming in to market, the poorest of them bearing heavy burdens strapped to their backs, secured by a broad band over their foreheads, the more fortunate riding in rude carts with wooden wheels, laden with corn and charcoal.

Two leagues out, we entered the Indian town of Tule, which is famous all over Mexico for its giant savin-tree, more celebrated, however, for its breadth than height. It is no mean rival of the gigantic baobab of Africa (*Adansonia digitata*), which Humboldt considered the oldest organic monument on the globe, but the largest examples of which, as near as I can ascertain, measured but thirty-four feet in diameter. This tree of Tule — *tulé* is the Aztec name for bulrush — measured around its trunk, at five feet from the ground, 146 feet, following its irregularities; longer diameter of the elliptical trunk, 40 feet; diameter of its spreading bulk of branches, 141 feet; height, about 160 feet. This grand old *arbol* is in the centre of the village, in the enclosure containing the parish church, which it completely overtops. Its vast bulk can be seen rising above the plain at a long distance from the village, and it is said to have sheltered the army of Cortés, when on its terrible march to Honduras, three hundred and sixty years ago.

Our road beyond lay over a fertile plain to Tlacolula, a fine town with many good buildings, in a region of aboriginal mounds. In the outskirts, the houses were surrounded by hedges of cactus, with gates made of canes, enclosing fields of corn. The main road to Tehuantepec branches off here, and we left it and bore more to the east, through a lateral valley, where the soil was poorer, though bearing thin crops of cane and corn. We rode under high cliffs full of caves and holes, in which a miserable people found shelter, and great rocks were set up on the ridge, as though the milestones of the Cyclops, to guide one to the valley of Mitla. After rounding these cliffs, the semicircular valley opened out, with an Indian town lying at the bottom, and the ruins hidden behind it surrounded by hills on three sides. Two great trees stand in the centre of the town, landmarks visible miles away, and beneath these some dozen or so of women were holding market in the open air as we drove up. The only good house in the village was that of Don Felix Quero, this being of stone, and all the rest of mud or adobe. We were surprised at the neatness of the house, which surrounded a great square yard, containing orange and

pomegranate trees, and above the clean, flagged court hung cages of parrots and mocking-birds. We got here a very good dinner, and clean beds, which are generally rare articles in the country districts of Mexico. In the market-place of the town, we found a great stone pillar twelve feet high, and scattered about were mounds of adobe; but the real ruins were situated across the river.

The Indians here are Zapotecs, and not only speak their ancient language, but retain their old customs and manners. When they meet, they salute by carrying the hand of their neighbor to their lips, especially when a young person meets an older one. Though the Indians of the valley are Zapotecs, about eight leagues distant, in the almost inaccessible hills, are Indians who speak a distinct language and differ from them in many respects. These are the Mixes; their chief town is called Ajutla, and they are said — though I do not believe it — to retain the cannibalistic feature of their ancient sacrifices. They certainly yet sacrifice birds, wild animals, and fowls to their gods, being only nominally Catholics, and being as great heathens as ever. Owing to this belief, that they sacrifice and devour all strangers visiting this country, no white men go there; but, being a lean man, I think I would not hesitate to venture a visit. These cannibals have ever preserved their independence; they were never conquered. The Spaniards subjected the Aztecs, Tlascalans, Miztecs, and many others, but the Mixes have always maintained their liberty. The town was full of them the night of our arrival, it being Saturday, on their way to market in Tlacolula and Oaxaca. This was their halfway place, where they passed the night, though the next morning they departed before daylight. They brought with them oranges, peaches, and peppers; these they carried in nets, on the backs of mules and donkeys. We bought thirty large oranges for six cents, and a mule load, or five hundred, for a dollar. These people seemed not quite so dirty as the Zapotecs, who were immaculate as compared with the Mexicans, — the Aztecs.

It was a simple life opened to us in that Indian village, primi-

tive as at any period prior to the conquest; in the morning the women brought out their calabashes of peppers, Chili beans, and fruit, and squatted down beneath the great tree, waiting for a customer, spinning industriously the while; and this they kept up all day long, chatting and gossiping till evening fell.

We devoted several days to the exploration of these ruins at Mitla, known to the world only through vague accounts given in archæological works; and it is from the fact that their history

COURT OF MONOLITHS.

is so obscure, and that no popular descriptions of them have been given, that I assume that my readers will be interested in a description of these "dwellings of the dead."

Mitla, says the eminent antiquarian, Bancroft, author of "The Native Races of the Pacific Coast," is probably the finest group in the whole Mexican territory. Here was a great religious centre, mentioned in the traditional annals of the Zapotecs, the original name of which seems to have been Lioba, or Loba,

the place of tombs; called by the Aztecs *Miquitlan, Mictlan,* or *Mitla,* "place of sadness," dwelling of the dead; often used in the sense of hell. The gloomy aspect of the locality accords well with the dread significance of the name. A stream, with parched and shadeless banks, flows through the valley; no birds sing, or flowers bloom, over the remains of the Zapotec heroes.

Humboldt, though he describes them, never saw these ruins. The first exploration was in 1802, by Don Luis Martin and Colonel De la Laguna from Mexico, who visited and sketched the ruins, and from whom Humboldt got his information. In 1806, Dupaix and Castenada, and in 1830, the German traveller, Muhlenpfordt, made plans and drawings which were published, the originals of which may yet be seen in the institute of Oaxaca. Muhlenpfordt's plan, given by Bancroft, is said to be the only general one ever published. The French archæologist, Charnay, took photographs of Mitla a score of years ago.

There are five groups of ruins, three of which are in excellent preservation. A portion of the village is built among them, and lies near the bed of the shallow and treeless river. After crossing this river-bed you enter the little adobe hamlet, where the only vegetation is cactus and nopal, and find yourself unexpectedly amongst the ruins. As they do not lay claim to regard so much on account of their height as for their extent and elaborate ornamentation, the wall of the first rises before you while you are yet unaware of its vicinity. Though it contains some immense blocks of porphyry, and traces of hieroglyphic painting, its ruin is more complete than the second group, to which we anxiously hastened. The first collection is about one hundred and twenty feet by one hundred, and the walls, fifteen to eighteen feet high, enclose a large court, on three sides of which are rooms. The outer walls of all the ruins are composed of oblong panels of mosaic, forming grecques or arabesques. There seems to be no sculpture on the walls, but only this peculiar mosaic, formed of pieces of stone, each one about seven inches in length, one in depth, and two in breadth, accurately cut, and fitted into the face of the wall, forming patterns

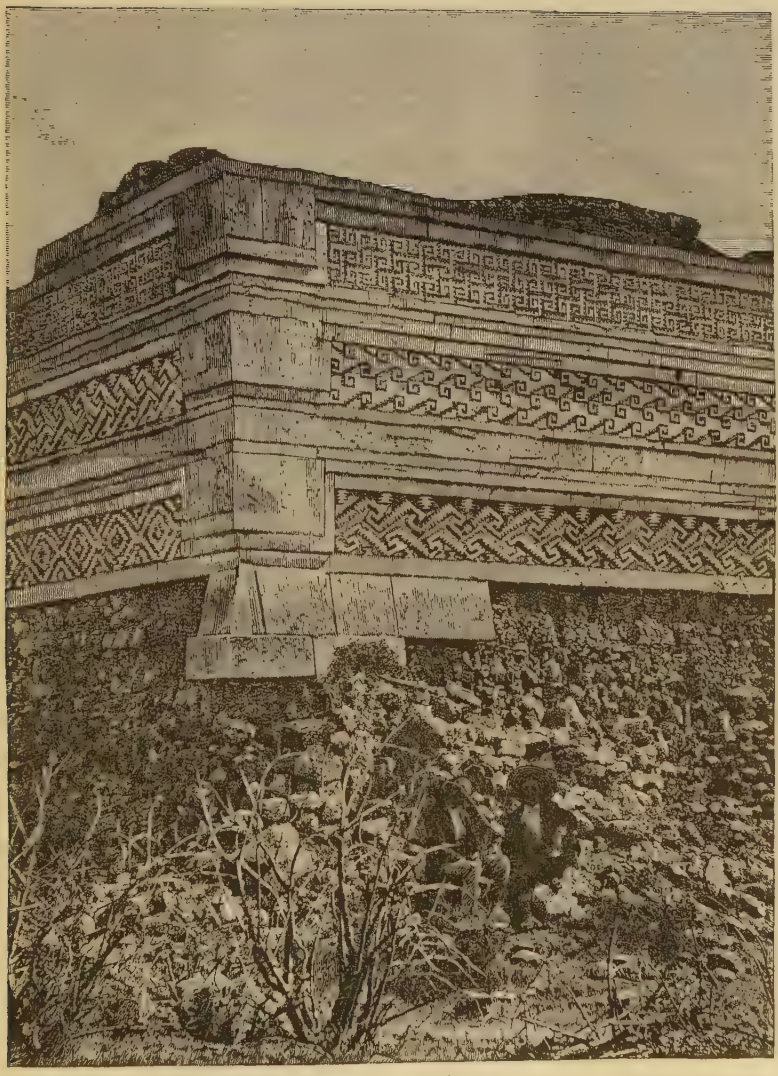
so complicated in their nature that only the accompanying engravings can properly represent them. This mosaic, all the figures of which are rectangular or diagonal, gives the distinctive character to Mitla that distinguishes it from all other ruins. The façades of the Yucatan ruins are carved, while Palenque is noted for its sculptures and stucco in bas-relief, and Copan for its idols and altars. We are overwhelmed with the magnificence of this great work as a whole, and impressed by the careful execution of the details of this stupendous undertaking.

Beneath a wall of the northern building is an underground chamber, known as the *subterraneo*, in the shape of a cross, each arm about twelve feet long, five and one half feet wide and six and one half feet high. The immense block of stone that covers the junction of the two galleries is supported by a monolith, called the "Pillar of Death," from a tradition that whoever embraces it will die before the sun goes down. To the horror of our Indian guides, each of our party took particular pains to embrace that pillar most affectionately, and we still live. Traditions are rife about these ruins. One relates that from this *subterraneo* leads a long, underground passage, across the court, to another subterranean chamber, which one account represents as full of treasure, and another as full of mummies. The soil of the court has been dug over at various times by treasure-hunters, and it is confidently believed that two old Indians residing here are cognizant of an immense amount of buried gold and silver; but they will not reveal it, and merely extract sufficient to keep them comfortable.

We crawled into the subterraneo, which was about three feet square, and, as it seemed to extend farther, our archæologist was fired with the desire of opening it. Accordingly, having secured permission from the *jefe* of the village, he set a dozen Indians at work, some with long steel ox-goads, to sound the cavities, and others with wooden shovels. The result of a whole day's labor was to show that there was formerly a tomb there, but that the passage, if any existed, had been filled up hundreds of years ago. The interior of this chamber was of faced stone, with panels of that wonderful mosaic, which was repeated in adobe bricks.

The third group is the most interesting, since not only are the outside walls cut in mosaic, but there are several rooms and courts, the sides of which are a labyrinth of grecques. The lintels of this and the adjacent ruin are immense blocks of porphyry, one of which is nineteen feet in length, a solid block of stone, raised to its present position by some lost process of engineering, certainly by one that is unknown to the Indians of to-day. The rooms are narrow, and at present open to the sky, but were once undoubtedly protected by a roof. But what distinguishes the ruins of Mitla from all other remains of Mexican architecture is, as stated by Humboldt, six columns of porphyry, fourteen feet in height, which are ranged in line in the centre of a great hall. They are very simple, having neither pedestal, capital, nor architrave, but stand as almost the only examples of the kind found in American ruins.

Above these ruins is a stone church, in the central portion of this bench of the foot-hills on which they are built. We entered the curacy adjoining the church, which was simply the old building of the Indians, roofed with tiles, and were hospitably received by the cura, who recounted to us the traditions respecting his strange abode. This ruin is larger than the others, being 284 feet long and 108 wide, with walls five or six feet thick. Two great stone pillars, twelve feet high, stood in front of the doorway. The walls had the same ornamentation of diagonal mosaics, and the portion used as a stable contains the best preserved fragments of paintings in the ruins, of characters resembling the Egyptian, exquisitely colored in red and black, the colors yet fresh and bright. The cura was very intelligent, though he had Indian blood in his veins, and he had very clear ideas as to the uses of the various buildings. The first group, he said, was probably used as quarters for the troops; the second, the largest and most elaborate, was the palace of the king of the Zapotecs, who came here two or three months in each year, as to a *buen retiro;* the third and highest building, from which and out of which the church was built, was used by the priests, and these paintings that adorned the panels in the walls were probably hieroglyphical, and in their custody.



THE MITLA SCULPTURE, À LA GRECQUE.

(From a Photograph.)

There was one more ruin, a pyramidal mound about seventy-five feet in height, faced with stone, with a series of stone steps fronting westward, and containing to-day, like the pyramid of Cholula, a chapel on its summit. "I am inclined to believe," says Bancroft, "that Mitla was built by the Zapotecs at a very early period of their civilization, at a time when the builders were strongly influenced by the Maya priesthood, if they were not themselves a branch of the Maya people." Scattered over the ground, as about the pyramids of San Juan, near Mexico, are idols of clay and rude implements of stone. The children brought us many, some excellently carved, flat heads of terra-cotta, that probably once served as ornaments for the walls against which they were stuck. Mention is made of stone wedges, and axes and chisels of copper, having been found in the ancient quarries, yet visible, not far distant from the ruins. That the hills about are full of ruins which no one has seen of late, we were fully convinced. We visited several sepulchral structures of stone, their inner surfaces carved into the same strange shapes as adorned the walls.

Professor Bandelier, sent out by the Archæological Institute of America, had remained here twelve days, but had not seen these *paredones*, or Indian walls, in the hills which we visited. The first one we saw at the hacienda of Sagá, and Mr. Bliss and myself visited it while Mr. Aymé carried on his measurements and excavations at Mitla, from which it is one league distant. It is called the "subterranean palace," is beneath the house of the proprieter of the hacienda, and was discovered some twelve years ago. The first intimation that this modern house had been built above a tomb of the departed Indians was from a *phosphoric light*, that a servant saw dancing over an aperture in the floor of the main hall. An excavation revealed a vast vault in the shape of a cross, each arm of which was about thirty feet in length. Three skeletons were found stretched out in it, which crumbled to dust on exposure to the air. The sides of the great blocks, about five feet in height, were ornamented after the fashion of Mitla, but instead of mosaics the figures were *cut from the solid stone.* This was of a fresh red

color, and the raised portions in relief were burnished. Perhaps all those on the walls of Mitla were, at one time; but these alone have preserved their color, by having been buried.

We effected our descent to the tomb through a hole covered by a loose plank in the floor, and escaped from the damp and dismal place in the same way. Then the courteous proprietor supplied us with horses, and we ascended the high hills in quest of the paredones above the valley, — a most tedious climb, over ridges and through barrancas. We found the largest paredon in a dense thicket on a hill commanding the whole valley, near the gap through which passes the trail to the Mixe village of Ayutla. A sepulchre is formed here, of massive blocks, in the form of a cross, about ten feet deep, six wide, and thirty long. All the inner faces of these immense blocks are sculptured, like those at Sagá, while other dressed rocks are scattered about.

About two miles from Mitla is a high hill, the top of which has been levelled and fortified. A wall of stone from ten to twenty feet in height completely surrounds it, in all more than a mile in length. The hill is about six hundred feet high, precipitous and inaccessible except towards Mitla, where the wall is not only double, or overlaps, but the entrances are not opposite each other and penetrate the walls obliquely. After a very hard climb we reached the summit, where we found the remains of adobe dwellings, great heaps of stones, as though gathered for defence, and thousands of fragments of pottery. There were also great rocks poised near the battlements, as if ready to be toppled over upon an enemy attacking from below. The fortification follows the contours of the cliffs, at all points presenting a perpendicular face to assailants. The hill completely dominates the little valley hidden from the world in this romantic spot, and overlooks the larger valley outside and all the dry plains and hills about Mitla. It was evidently built by a different people from those architects of the palaces below, and it must have served well as a place of defence. Terrible battles have been fought here, one of the greatest of which, if we may believe tradition, was regarding the possession of Montezuma's daughter. It seems that the king of the Zapotecs and the king

of the Miztecs each desired the daughter of the Mexican king for his son to marry. She was given to the Zapotec, upon which the king of the Miztecs made war upon him, and a sanguinary battle was fought upon this very hill, overlooking the palaces of the Zapotec king, and the Miztecs were defeated.

At sunset, we descended from this deserted fortress to the valley that lay below. A solitary plain stretched before us, covered with rock and stone, and a few dry bushes. It was late, and even the pasture boys had gone to their huts, and all was still. As I walked down the steep slopes, I thought upon what this valley must have been when Mitla was in its glory, swarming with the flower of Indian nobility, with men of intelligence, architects of skill, and warriors of renown. How did this little valley support them all? Was it always so dry and sterile? Where are those people now, and how long is it since they built these palaces and tombs?

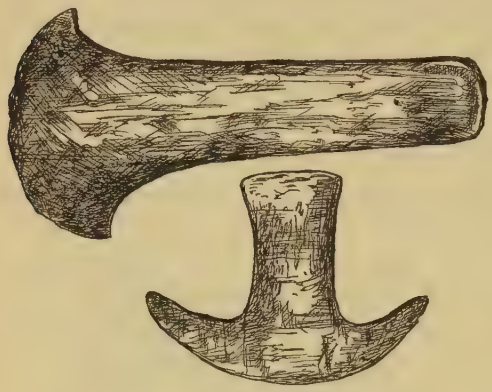
THE NEW DISCOVERY (SCULPTURED STONE).

On our way homeward we visited the town of Teotitlan, the "dwelling of the god," so called because the chief deity of the Indians once had his residence on a high peak overlooking the town. We were met by the alcalde, who wore nothing but a hat, shirt, and sandals, but who carried a silver-headed cane as a badge of authority. The people of the village were clad in rags and were very dirty, while the children roamed around with no covering to their nakedness but their hats, and some of these even were brimless.

A thunder-storm came over and prevented much exploration, but we discovered several large stones, one with a carved representation of a tiger on it, and bought a few very curious jars,

or pots, of peculiar make, and very uncommon. The traditions of this place are well preserved, and though the people are inhospitable, an archæologist of perseverance could pass a most profitable season among the hills and in the valley of Tlacolula.

Some years ago, in this valley, a great discovery was made of a large number of copper axes; nearly a bushel of them were ploughed up, by a very intelligent friend of ours, Señor Fidencio Fenochio. Unfortunately, as they were of nearly pure copper, they were melted down, to be used in the reduction of silver. But our party secured a number, and the six that fell to my lot were the first, so far as could be ascertained, ever brought to the United States. Two of these went to the Smithsonian Institution, and four to the Peabody Museum of Archæology, at Cambridge. Upon analysis they proved to be almost unalloyed, the Smithsonian specimens containing 98.7 per cent of pure metallic copper, the balance being iron, arsenic, and antimony. Prof. F. W. Putnam, a high authority, describes these specimens, as well as all others known of American aboriginal copper ornaments and implements, in a paper which is unquestionably the most valuable contribution to our knowledge of the subject.[1] Among the "axes" obtained by me were two of the shape of the Greek Tau, of pure copper and very thin. A figure of each type is here shown, reduced in size. Although the larger and thicker specimens



TWO TYPES OF "COPPER AXES."

[1] See Fifteenth Annual Report of the Peabody Museum of American Archæology and Ethnology, Cambridge, 1882. In this Museum we find arranged, (through the indefatigable industry of Professor Putnam,) not only collections of the antiquities of Mexico, but specimens of indigenous products illustrating the growth of native industries in modern times.

may have served as axes, yet the tenuity of the smaller ones forbids any supposition that they were so used. They most probably served as currency, and as articles of tribute.

After our return to the city of Oaxaca, our chief projected a series of expeditions to the hill towns and mountain districts of the great State, which involved three long and fatiguing journeys among the Indians of the sierras, where *gentes de razon*, or "reasonable men," were scarcer than the gold which was the object of these expeditions. We rode, in all, over nine hundred miles, horseback and muleback, and our adventures were of such a romantic character as to be almost out of place in a sober book of travel. At all events, the space at my disposal will not permit me to include them, and I hasten on to the conclusion of my explorations in Southern Mexico; though with extreme regret, for notes made from the saddle are always more interesting than those from a car window, and fresh fields far more fascinating than a region traversed by beaten paths.

Our friend and companion on these excursions was a noted horseman of Southern Mexico, Don Santos Gomez, who provided the best of horses and the safest of mules, conducting us to our destinations with the tender solicitude of a mother. Each caballero of the party was fully equipped after the Mexican fashion, which is the best in the world for travel on horseback. On his head he wore a broad sombrero, or felt hat, of native manufacture, and from his shoulders, in the cool of morning or evening, depended the sarape, or blanket shawl, also the product of native skill. Having a slit in the centre, through which the head was thrust, it fell around him in graceful folds, hiding the broad belt about his waist, which contained a *cuchillo*, or broad-bladed knife, and his revolver, and covered likewise the saddle, as well as a goodly portion of the beast he rode. For the rain he had his *manga de agua*, or rain-cloak, a rubber sarape, like the poncho of South America, so broad and ample that it not only protected the rider from rain, but could be spread out over the animal beneath him from head to tail.

The sarape, I am inclined to believe, is an aboriginal garment, worn by the Indians of Mexico in pre-Columbian times. It is

made about two metres in length and one in breadth, nearly always with a short fringe at either end, and generally colored in bright stripes with native dyes. It is, in fact, a long, gay-colored blanket, with a slit in the middle, always parallel to its longer sides, which is the centre of a pattern-work more or less ornamental, according to its nature and price. I have noticed that there is a similarity of pattern in all the sarapes which have come under my observation, the ornamentation of the centre being always in certain zigzag lines, which reminded me of the grecques on the walls of the palaces of Mitla.

We did not adopt the extreme Mexican costume, as worn by our guide, Don Santos, with leather breeches, or shaggy goat-skin *chaparreros*, nor deck our heels with enormous silver spurs, — which, though often several inches in diameter, are less cruel than the needle-pointed English ones; nor were our jackets of embossed and silver-braided leather, nor our pantaloons ornamented with silver buttons adown their seams. For we had assumed the garb of the Mexican only as it should contribute to our comfort, and were not intending to lay siege to any fair señorita, — if perchance any such existed in the sierras, — or to display ourselves otherwise than as *caballeros en viage*, or gentlemen on a journey.

Coming down from our third and last trip into the hills, on the 8th of September, it was found that the next steamer for the United States would sail from Vera Cruz on the 13th. To reach the nearest point on the railroad to the coast necessitated a horseback ride of one hundred and seventy miles, clear through to Tehuacan, over an extremely rough mountain road, and with scant three days to do it in. Don Santos, who had been a most active courier in the Franco-Mexican war, and had served in various *pronunciamientos*, volunteered to place me in connection with the railroad within three days, or kill his best horse in the attempt. And he did it, without damage to his gallant stallions, but at an expense to myself of a fever, which has racked my bones at intervals ever since.

My good guide left me at the station in Tehuacan, where, after placing in my hands the bridle of the horse I had ridden

so many long days and nights, and to which I had become devotedly attached, he embraced me with all the affection of a brother, and wished me God speed on my journey. He was a type of the true and trusty guide of Mexico; may he long survive to guide other travellers where I have been!

DON SANTOS, CABALLERO.

To one who has travelled for nearly two months with no other means of transportation than mules and horses, the sight of a railroad is most refreshing. Even if he make what may be called a Mexican connection, — that is, find himself just twenty-two hours late for the train, — he has consolation in the fact that he is again in a portion of the country where a train runs at stated intervals, even though but once a day. I had been in the saddle, previous to reaching the station of Esperanza, for sixteen days; in the last three, had ridden one hundred and seventy miles, sixty in the last day, and had reached the railroad in a state of exhaustion and fever, for which the great heat of the southern valleys, in violent contrast to the cold of the high plateaux, was mainly responsible.

Two months previously I had left Cordova for Southern Mexico, taking with me but little luggage, as the travel was to be on horseback, and had left nearly all my effects with a worthy man whose acquaintance I had made but a few days before. At that

time the yellow-fever was within eighteen miles of Cordova and rapidly advancing up the mountains. Now it was in the town itself, and raging still more fiercely than at the coast, and it was reported that the small-pox was carrying off such as the vomito spared. Three telegrams, sent in advance, elicited no response from my friend, and I feared he had departed, a victim to the vomito, until the dreaded station was reached, and my luggage found in possession of the agent.

It is a very strange fact, — but nevertheless a fact, — that, no matter how much the vomito has devastated a place, the prominent people all seem to be spared. Here in Cordova, it was reported, a dozen people had died daily for a month, yet at the depot there were the same officials, the same porters, even the same women and children selling mangos and pine-apples.

Dreaded by many is the passage through the city of Vera Cruz during the summer or the autumn months. Every precaution is taken against delay there, and people *en voyage* hurry through hardly daring to draw a deep breath till safe on shipboard. My calculations had been made with an eye to this fact, with the intention of going direct from train to steamer; but there was a great obstacle to the carrying out of this plan. As we got down clear of the mountains and were crossing the Llanos, we were saluted by furious blasts; the palm trees were wildly lashing their trunks with their long leaves, and the wind whistled and howled through the train.

A chronic complaint along the coast of Vera Cruz is that blast of Boreas called the "Norther." It swoops down upon the sea like a bird of prey, sending ships ashore, and laying low many a forest monarch and many a residence on land. The open roadsteads of this coast offer no protection, except for the slight shelter afforded by the island and castle of San Juan de Ulua, in the bay of Vera Cruz. The sea dashes over the quay in great waves, and over the sea-wall into the streets, covering the custom-house with spray, and the houses of even the back streets with incrustations of salt. The wind howls through the streets, filling everybody with sand and consternation; but it is a welcome visitor, nevertheless, and the amount of disease and fever

germs it dislodges, and sends off to be dissipated in thin air, cannot be calculated. During the "Norther" all the small boats and lighters are drawn out and hauled up beyond the reach of the surf. Larger boats and steamers are made as snug as possible, and the crews rejoice in a short period of enforced leisure.

By this series of gales the steamer was detained three days beyond her usual time of leaving, and I, after having made such frantic efforts to reach her, after having ridden so fast and far to catch her, found myself stranded (as it were) in Vera Cruz till the storms were over. Then we departed from this glorious country, from this land of surprises, of deep, impenetrable forests, shrouding from human view cities born thousands of years before our history began, and at the port of Progreso, at the extreme tip of Yucatan, we finally said good by to Mexico.

Seven months previously I had landed on this very shore, a stranger, not knowing a single soul. I had gone into the interior, and had since travelled many a mile through the forests and over the plains and mountains of New Spain. Now I was returning to the "States," laden with the spoils of many a foray in historic fields, and rich in the recollection of many friends, — pursued, perchance, by the curses of a few enemies. It seemed like parting from scenes of home, when we steered away from Yucatan, and the low sand-hills, with their fringes of palms, amongst which nestled red-roofed houses, sank down behind the sea.

Two days later, we were dodging the carriages in the streets of Havana, and listening to the band, at evening, as it filled the cool air with music in the Parque de Ysabel. Havana, too, was stricken with yellow-fever, but we heard more of it before we reached the port than after we had entered it. Indeed, the port officials, rotten with pestilence and jaundiced with past fevers, wished to place us in quarantine, instead of warning us against infection on land. But we sauntered on shore, and took aboard cargoes of sugar and tobacco, and really gave the fever little thought. Nor had we any occasion to, though we were saddened, and reminded that the climate of Mexico was not

entirely perfect, by the death of one of our number, only one day out from Havana. We buried him next morning at sea, almost within sight of the Florida coast, and three days later we crossed the Gulf Stream, and entered the harbor of our grandest city.

THE ALCALDE

BOOK III.

THE BORDER STATES.

"O vale of Rio Bravo! Let thy simple children weep;
Close watch about their holy fire let maids of Pecos keep:
Let Taos send her cry across Sierra Madre's pines,
And Algodones toll her bells amidst her corn and vines;
For lo! the pale land-seekers come, with eager eyes of gain,
Wide scattering, like the bison herds, on broad Salada's plain."

XXVII.

BY RAIL TO NORTHERN MEXICO.

I AWOKE, one morning, on the banks of the Rio Grande, the great river separating the two republics of the North, with twenty-five hundred miles between me and the city from which I had departed five days before. I had left it in the gloomy twilight of an evening in May, on the first day of that month of disappointments.

O the kaleidoscopic changes of that ride by rail! We left New York with hardly a tree in blossom; in Western Pennsylvania, the cherries, peaches, and pears were bursting into bloom; in Ohio, they had hidden their skeletons of branches in sheets of pink and white; and in Indiana and Illinois, as the great road trended southward, foliage and flower vied in its display of verdure and efflorescence.

Night fell about us in the centre of the famous Horseshoe Curve, partially veiling its glories and its beauties; but before the second day had drawn to a close we had reached the Mississippi, had crossed its miracle of a bridge, and had entered the city which stands at the confluence of our mightiest rivers, — St. Louis. Thirty-six hours and a thousand miles parted us from the great metropolis of the coast; but we did not stop here, for a train was in waiting in the great Union Depot, and it was but a step from Eastern to Western track; another iron steed was harnessed into our carriage, and in another hour we were dividing the mists that lay above the Missouri prairies. At daylight, next morning, we were half-way across the State, at ten o'clock we sliced off a corner of Kansas, and at noon were in the Indian Territory. When I sought my berth that night, the third of the journey, we were still speeding across the boundless Indian prai-

ries; but when I awoke, next morning, the beautiful plains, with vast herds of cattle feeding on them, and covered with flowers of every color, proclaimed our entrance into Texas. Diagonally across this grandest of States we drew a southward-trending line, and the thousand pictures that danced before our eyes — that appeared, vanished, and were replaced by others, which in turn waltzed away into space — were seen through the crystal plate of a hotel-car window. We ate, we played, we slept; we awoke refreshed, to renew the blissful experience of the day that had passed, with an ever-recurring change of scene.

And so, as I said at the beginning, we reached the Rio Grande, where I opened my eyes from my fourth night's restful repose, and left with keen regret the shelter of my temporary house on wheels.

It is at San Antonio, one hundred and fifty miles from the Rio Grande, that one first enters a really Mexican settlement. Beyond San Antonio, running south, the great inclined plane of Texas, which slopes to the Gulf of Mexico, and which is fertile in the northern and central portions of the State, becomes more sterile, and is covered with chaparral, of cactus, yucca, and mesquit, — vegetation anything but attractive, though shading a peculiarly sweet and nutritious grass, which renders this region desirable for the cow-boy and ranger. It is not my purpose to describe other country than that pertaining to Mexico; yet in Texas we find ourselves in a former province of New Spain, and at San Antonio in an ancient Mexican town, set down in the centre of a very pleasant and fruitful region.

The scenery of this section, though of the finest, is less attractive to me than its history; for here were established, as early as 1690, by monks coming up from Queretaro and Zacatecas, those frontier missions of Mexico. The "Mission Period" lasted from 1690 to 1820, or so long as the Spaniards held possession of Mexico; but at the opening of this century, Texas, although a province of New Spain for one hundred and fifty years, was almost unknown to Americans. Austin's bold project of colonization opened it to the North, and in a few short years it became more populous and prosperous than any State of the

Mexican confederation. Then came the inevitable trouble between the hardy and independent citizens of this remote province and the military rulers sent to govern them from Mexico. After the massacre of the Alamo, in 1836, the Mexicans lost men, and courage, and territory, until the last was finally entirely wrested from them, and the limits of Old Mexico fixed at the Rio Grande, instead of the Rio Sabinas.

But, except to pause a moment to gather up these scattered threads of history that connect San Antonio with the country we are about to visit, we have no cause to linger here; our destination is Mexico. Let us return to the Rio Grande. The Mexican monks pushed their religious conquests into the Indian country, founding fortified posts as far east as San Antonio; but there was no permanent settlement on the Rio Grande until 1737, when the Presidio of Laredo was established. Herds of cattle and horses gradually extended over the intervening country, and to the south and west; but at the breaking up of the colonies, in 1820, these became the prey of the Indians, or ran wild, and gave rise to great droves of mustangs, which were in later years found grazing here in countless numbers.

So complete became the desolation of this southwestern section that, when General Taylor marched with his army from Corpus Christi to the Rio Grande, in 1846, it is said that not an inhabitant existed there. It was not till 1850 that the repopulating of this portion of Texas commenced, when the mustangs were caught or killed, and the foundations laid for that great enterprise of stock-raising, to which alone this arid region is adapted. Over this apparently worthless territory the stock-raisers of Texas are now quarrelling bitterly, and running fences in every direction, one owner alone having above one hundred miles of barbed wire around his ranch.

Along the entire length of the treacherous Rio Grande, there are few natural passes through the sterile hills that guard its banks. Laredo is situated at one of these, and is the objective point for the great railways, which are shooting their steel shafts across the Border, and which take no heed of men or towns, but seek for passes with natural advantages. It is the largest town

in Webb County, which has an area of fifteen hundred square miles, and lies along the river. Its climate is mild, though trying, and cattle are pastured throughout the year, though only about one tenth the county area is fit for cultivation. The population of the county is about eight thousand, which represents a gain of six thousand in ten years; and its taxable property $2,000,000, or a million and a half more than in 1870. Laredo itself contains about six thousand inhabitants, constantly increasing in number, and the American element yearly gaining on the inert and useless Mexican.

Every town on the Rio Grande has its counterpart on the opposite side of the river, and so there is here a new and an old Laredo. One, the American, is busy, prosperous, progressive; the other, the Mexican, is idle, lifeless, and gone to decay. Yet, notwithstanding that the American Laredo has such an undesirable neighbor, it is advancing with mighty strides, dragging after it the moribund carcass of its sister town, which it is all but resuscitating, in its own efforts to enter into a new and quickening life. It is an American town engrafted upon a Mexican stump, but which might have been a yet more vigorous shoot if it had been a seedling in virgin soil, instead of a nursling with decaying roots.

There are few beautiful buildings in Laredo, but these are ambitious ones, such as the court-house and jail, which cost nearly sixty thousand dollars, and those of the several railways. If I were writing of the Laredo of five years hence, I should speak of handsome and substantial structures, for these are destined to be built. The Mexican character of the town is visible in its plaza and church, the former treeless, and the latter more barren of ornament than is usual in the houses of worship in Catholic Mexico.

The town has a bank, several second-rate hotels and first-rate bar-rooms, many large mercantile houses, an "opera-house," a ten-thousand-dollar school fund, telephones, and water-works, and electric lights in prospective for the very near future. Yet, withal, Laredo is set down in the midst of a landscape that is absolutely heart-rending in its dreariness, and rejoices in a cli-

Main Plaza. MONTEREY. Bishop's Palace.

mate that, though healthy, is most discouraging and appalling, alike to resident and new arrival. It is hot, but that is nothing; it is windy, but that does not signify; yet when heat and wind combine, and the one scorches the Rio Grande sand until it is fine grit, and the other hurls it into the air in whirlwinds of dust, then the dweller in Laredo muffles his head and curses his unhappy lot, while the temporary sojourner curses likewise, but departs. But for the heat, and the sand, and the fleas, and the Border Mexican, it would be pleasant to live in Laredo, if one were not obliged to gaze continuously upon its joyless scenery. But as Laredo is the "gateway" to the promised land of Mexico, one need not remain here if he choose to go farther, for here two great international lines cross the Border and invade Mexican territory. One hundred and sixty-seven miles west is Corpus Christi, the Gulf terminus of the "Mexican National" railroad, while to the north is San Antonio, connected with Laredo by the "International and Great Northern." Here the "Oriental," the southern courier of the vast "Gould System" of railroads, leaps straight across the river, penetrates the *tierra caliente*, or hot coast region, and draws a direct line for Mexico City. Thence it will be continued southward by the "Mexican Southern," a concession controlled by General Grant, and eventually may penetrate the confines of Guatemala, and even Central and South America. Who knows? With a management presided over by the greatest general of our armies, and the skilful organizer of our railways, it seemed possible that one might soon be able to purchase a ticket from New York to Panama or Quito. But this enterprise perished almost in its inception, and the "Mexican Oriental" is now a thing of the past. But all things seem possible after an inspection of the great lines of the Southwest.

The muddy Rio Grande was bridged by the railways but little over a year ago, until which time it had always been crossed by ferries. It was in the dry season; at that time it was but a gentle stream, meandering sluggishly between its sandy banks, and which a man could almost wade across. It endured the ignominy of being spanned, without remonstrance; but as the melt-

ing snows fed its mountain sources, far away in Colorado and New Mexico, and its multitudinous branches swelled its current to a torrent, it then, in the expressive language of the West, "just humped itself," and bore those bridges triumphantly away to the Gulf on its turbid bosom. But it is not always that man proposes and river disposes, for the structures of iron and stone now built will be able to defy old Rio Grande in his wildest mood.

The bridge we crossed, belonging to the "National," was built, it was said, in eight days. The distance from Laredo to Monterey, our destination, is one hundred and seventy miles, for the road does not directly approach it, as land is worthless here, and a road must zigzag over the country, and cover a good deal of it, in order to get some return for its outlay. It would seem that Nature intended the broad and arid Rio Grande valley to be forever a dividing line between the two republics; though steam and electricity were things not taken into account in the original plan of the continent, so that excellent roads now span otherwise impassable areas, and conduct to fertile fields beyond.

The frontier is crossed at about seven in the morning by the daily train which reaches Monterey at six in the evening. On the Mexican side of the frontier the luggage is examined by gentlemanly customs officials, and later on the road a polite young man makes pretence of peeping into your valise; but further than this there is no inconvenience, and you would not know that the smoothly-running train was not in the United States. The "National" is a narrow-gauge (three feet), but the cars are wide and comfortable, and those of the first class contain reclining chairs. For three hours the passage is through a desolate and forbidding country; then the mountains, offshoots of the Eastern Cordillera, show their crests, always fantastic in shape, and toned by distance into amethyst and purple. They present every variety of outline: conical, jagged, and even rectangular, the most conspicuous example of this last, the *mesa*, or table-topped hill, being opposite the town of Lampazos, about seventy-five miles from Laredo. This mesa has perpendicular walls, a thousand feet high, it is said, and a surface of nearly a

thousand acres. To the top the only access is by a narrow, zig-zag path, which only a man, or a donkey, can ascend. And if a man is very much of a donkey, he cannot get up at all. Here, strange to say, is a community of poor people, with a church and a school, and the soil is fertile, and produces great crops of corn for its owner, Señor Milmo, the rich banker of Monterey. Señor Milmo, by the way, is a living witness to the fact that fortunes have been made by foreigners in Mexico; for he, though Irish by birth, married the daughter of a rich *hacendado*, and so acquired his money and his mesa. Richly has he been repaid for whatever sacrifice he may have made in leaving the stately halls of the Emerald Isle, — with such others of his countrymen as occasionally condescend to honor America with their presence, — as not only has he gained to himself rich store of gold and *pesos*, lands and cattle, but even his name has undergone a transformation. For whereas in his native land he was known only as plain Pat Mullins, he now rolls under his tongue as a sweet morsel the sonorous sobriquet of Señor Don Patricio Milmo!

Now, why does not Mexico entice thither more of the sons of Erin? What have we of the United States to offer in lieu of such distinction as this? Nothing, alas! We can, indeed, bestow upon them the paltry honors and emoluments of office; but what avails this to the Celt, whose noble nature spurns all lucre as dross? Let our rulers look to this. Let them at once enact that every immigrant be addressed as a "Don"; else New York may lose many influential citizens, and Castle Garden become a howling wilderness!

At the station of Palo Blanco we are in the midst of a region of upland, and many small towns are passed on the mesquit-covered plains, the principal of which are Salado, Lampazos, and Villaldama; but they are not on the railroad, but nestle far away at the foot of a hill, or in a plain where a darker green indicates cultivation and gardens. Mines reputed wealthy in galena and silver — or in traditions of them — give a certain importance to some towns, and Bustamente, sixty miles from Monterey, is celebrated for the products of its looms. There

is here a colony of Indians, descended from the Tlascalans who fought by the side of Cortés, and whose ancestors were sent here to form a nucleus of civilization in the centre of the barbarous tribes who then overran the "Kingdom of Nuevo Leon."

At seven o'clock, and sunset, we entered a gap in the mountain wall which separates the valley of Monterey from the wretched country below, and were in an entirely different region. Hacks were in waiting to convey us to the city, which is a mile distant from the station, and to which also a fine tramway leads.

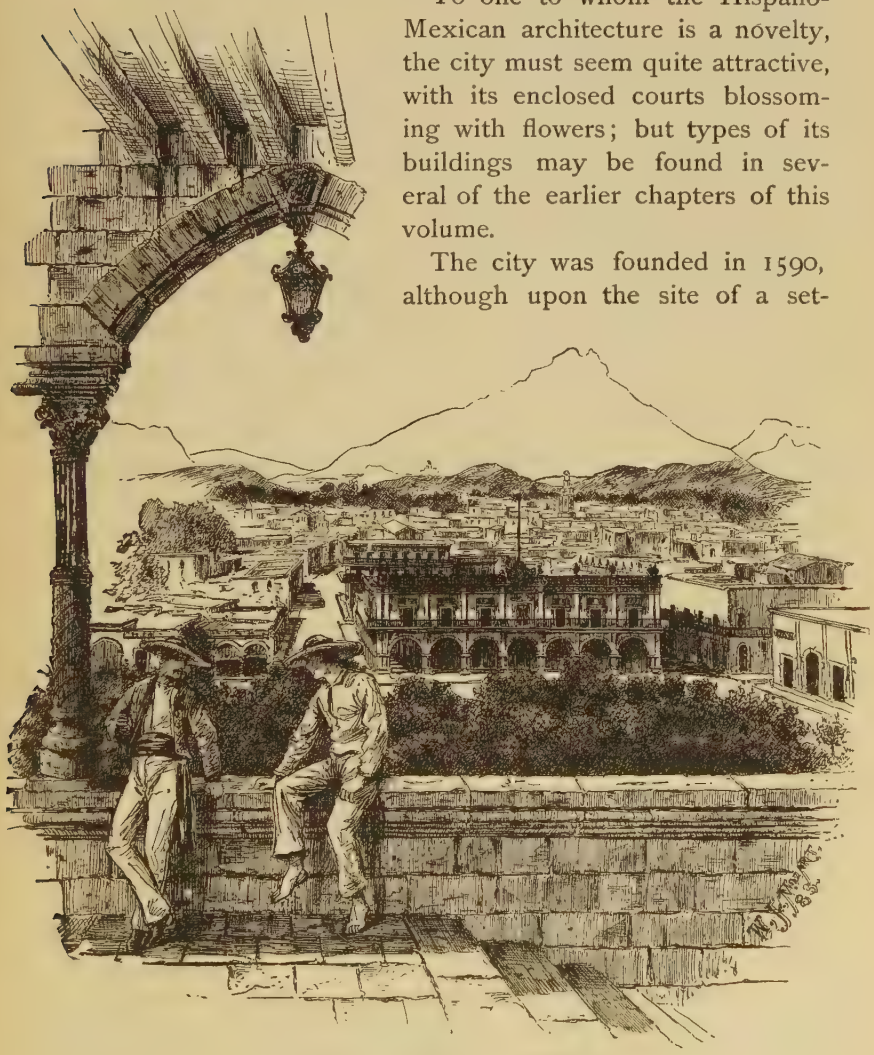
Perhaps that enterprising American who built the tramway from the railroad station to and through the city, whose expenses are about a hundred dollars a day, and who is constantly experiencing annoyances from the civil authorities, — being obliged, among other things, to carry a policeman on every car, who promptly returns every man ejected for non-payment of fare, — rejoices exceedingly that his lines have been cast in such a pleasant place. It is presumed that he expects to recover a fair interest on his investment; and perhaps he will, if the powers that be cannot find a pretext for confiscating the line, and turning it over to some deserving native, — it being well known to the Mexican that the American has great constructive skill, but no executive ability. Everybody rode at first, from the novelty of the thing, but everybody did not pay; and doubtless the proprietor of the line realized the difference between his position and that of the owners of Northern street-railways, whose patrons pay a six-cent fare for a five-cent ride. But the Mexicans are older, as a people, than the dwellers of the North, and perhaps more competent than they to deal with grasping monopolies.

Monterey lies on a fertile plateau enclosed by spurs from the Sierra Madre Mountains, at an altitude above the sea of sixteen hundred feet, and at a distance, in a direct line, from Mexico City of about four hundred and fifty miles. The scenery about Monterey is attractive, especially noteworthy objects being the mountain peaks. One of these, to the east, is known as *La Silla*, or Saddle Mountain, from a hollow in its ridge giving

it the appearance of a Mexican saddle, and the other as *La Mitra*, to the west, which reminds one of a bishop's mitre.

To one to whom the Hispano-Mexican architecture is a novelty, the city must seem quite attractive, with its enclosed courts blossoming with flowers; but types of its buildings may be found in several of the earlier chapters of this volume.

The city was founded in 1590, although upon the site of a set-



THE PLAZA AND LA MITRA.

tlement previously made, and is the oldest and most important of Northern Mexico. The climate is equable and salubri-

ous, and in the gardens and orchards are found fruits of the South, as well as of the North. Like Chihuahua, it carries on its commerce chiefly with the United States, and since the completion of the railroad this has grown rapidly; the population has nearly doubled in the past decade, and now numbers forty-two thousand. The buildings of note are the hospital, college, convent, city hall, and bishop's palace. This last-named building, on a hill to the west of the city, is a prominent landmark, not only in the suburban scenery, but in the history of modern Mexico. In September, 1846, the American army of the North had advanced as far into Mexico as Monterey, the capital of New Leon, and the key to all the northern provinces. In the city was the Mexican general, Ampudia, with 10,000 men, and this force the Americans, under Taylor, though only 6,500 strong, assaulted in their stronghold. They commenced the attack on the 21st of September, and after fighting desperately from street to street, assailed from house-tops and terraces by the populace, as well as by the regular soldiery, they penetrated to the central plaza. The next day, the strong position of the bishop's palace was carried by storm, and the entire force of Ampudia captured.

El Monte Rey, the King's Mountain, was for many years, in early times, merely a frontier post of the advancing Spanish civilization. Its location, in a fertile valley supplied with large springs, which pour forth a great volume of water, was most advantageous for trade with the Indians. The streams from these springs flow through half the town, and about their banks are clustered the mud and cane houses of the lower classes. In a stroll, one morning, I encountered a full company of soldiers industriously washing their clothing, and the while it was drying bathing their persons in the swift waters. A thing that will strike a stranger as anomalous in Mexico is, that though every shop in every city keeps and sells vast quantities of soap, and though everybody in the neighborhood of a stream is constantly washing, both himself and his garments, yet every person of the lower order is as dirty as though just dipped in a city sewer. As this fact has come under my observation through

thousands of miles of travel, I have at last come to the conclusion that personal ablution in Mexico is done by proxy; that is, that certain ones are hired to exhibit at the lavatories, and thus save the credit of the more respectable of the community.

A great effort has been made, of late, to bring Monterey forward as a health resort, and pamphlets by the thousand, the work of some interested, though injudicious author, have been circulated, praising the city to the skies. There is certainly much here to recommend the place to the tourist. Its buildings are old and quaint, its central plaza delightful, its altitude above the sea sufficient to insure a pure and healthful climate, and it has, a few miles away, some very remarkable mineral springs. But to call Monterey an "Invalid's Paradise" is going a little too far. Because there are no American hotels of note, the food is vilely cooked, and the streets, over which said invalid must be jolted, and the walks, are broken and full of holes. There are no attractions in the suburbs to which an invalid would take pleasure in walking, for the city is completely begirdled by the huts of the lower classes, whose squalor and misery are not exceeded in any other city of Mexico.

Six miles distant from the city, and a mile from a station on the "National" road of the same name, are the hot springs of Topo Chico. There are two of them, — one very hot (208° Fahrenheit), and the other an arsenic spring, just tepid. As I have previously remarked, one needs to forecast events at least five years, in writing of Mexico in 1883; and it may seem uncharitable to mention that the accommodations for the suffering invalid, who has been lured by the seductive pamphlets to these waters of rejuvenescence, gushing out of the "Paradise" aforementioned, are utterly wretched. Yet that is the cold fact; and, until the great hotel goes up, which is promised *mañana*, and until the present horrible hack, without springs and with the hardest of boards for seats, is replaced by a luxurious carriage, I would advise a seeking of the more accessible thermal waters of the United States. With good hotels, one at the springs and another in the city, Monterey may some time claim as many visitors as its Californian namesake.

In advance of the railway, and on its completion, there had been a great influx of Americans into Monterey, and the streets were tolerably full of disappointed fortune-seekers. They came here as to a new country, little realizing, until too late, that this very city was old when our republic was born, and that the Mexican, both Spanish and Creole, possessed an instinct for trade and a love for lucre as keen as the shrewdest Yankee in our country. Beyond establishing a few cheap bar-rooms, they had not accomplished much in the matter of business, and even though these charged a real for a glass of beer or lemonade, they did not seem to be making money.

Race prejudice is stronger here than in the interior, for the Border States have suffered more; and if any one imagines that the Mexican is disposed to allow the American to make a dollar, except by superior skill, he misunderstands the prevalent feeling. He is quite willing *el Americano* shall spend his own money in the building of railroads, tramways, and hotels, but he will resist strenuously any attempt to capture Mexican trade.

At the time of my residence in Monterey, the papers contained many bitter articles against "the North American invasion," — *el invasion Norte Americano*, — some indeed quite able. The *Revista*, the leading journal, advocated government aid in favor of immigrants of the Latin race, and even of the Mongolian, as opposed to the Saxon, with strong arguments in favor of the first. The great Saxon wave that is now sweeping over Mexico is of course irresistible, and the Mexican's recognition of it, and of his own impotency in arresting it, tends to enrage and exasperate. But though it will be impossible to stay the progress of that southward-sweeping deluge, which threatens to obliterate race distinctions and even the autonomy of Mexico, yet it is most absurd for any American to go there thinking to wrest a living from the soil. In the plateau it is mainly sterile; in the *tierra caliente*, no unacclimatized immigrant can long survive the fatal climate, and in every portion there are Indians by the thousand ready to labor for less wages per week than would purchase the meals of an American for a day.

During the week of my stay in Monterey, four murders were

brought to popular notice, but all committed, so far as we could learn, by aliens from over the Border. One of these was so brutal as to excite comment, even amongst the Mexicans. Two men, named Mudd and Leggett, waylaid and shot a Swedish railway contractor named Hickling, as he was driving through a lonely cañon with his buggy laden with silver to pay off his men.

THE CATHEDRAL.

They were captured by Mexican police, who would doubtless have offered no opposition if the threats of lynching, freely made by the employees of the road, had been carried out.

By the Mexican law, no capital punishment could be inflicted; but the alcalde of the village near which the murder was committed thought he could so arrange matters that the chief actors in this bloody drama should be shot, and an accomplice

sent to the fortress at Vera Cruz. This, I believe, was done, though it was after I left. They have a way in Mexico of inflicting the extreme penalty, without having the law on the statute-books, which is quite simple and effective. The judge remands a prisoner guilty of murder in the first degree to another court, or orders him transferred from one jail to another. It so falls out that the misguided wretch sees, or is led to believe that he sees, a way to escape, and attempts to run. Now no true Mexican would seek to establish a precedent so contrary to all the traditions of the country as to indulge in rapid locomotion, except in a case of life and death, and where his own was the life at stake. Thus it happens that the soldiers save their dignity, and their prisoner at the same time, by a volley from muskets ready charged in anticipation.

Mexican justice was not likely to prove tardy in this case, as the alcalde was even then smarting under an indignity offered to his own town. But a few days previously a telegraph operator had shot a Mexican "accidentally." Being a man of parts, and perhaps having already had a taste of Mexican law, he at once "lit out" in that expeditious manner designated in the South-west as "between two days." The authorities immediately wired those below in Monterey to stop the culprit as he passed through; but the operator there, being an American, thought best not to deliver the message until his *confrère* was well over the Border. Then, being a prudent man, he also made hurried preparations to depart from a land where the atmosphere was not favorable to the transmission of electric currents. But the *jefe politico*, with an alacrity truly wonderful in one of his race, promptly clapped the delinquent into the calaboose,—*el calabozo*. It being represented to him, however, that the business of the line, as well as that of the municipality, would suffer, unless he were released, he was forthwith mulcted to the tune of twenty-five dollars and set at liberty; and the first train northward carried him likewise across the Rio Grande.

The third man concerned in the murder of the Swede escaped, and it was rumored, and afterwards confirmed, that he was hiding in the very house in which I was stopping. Our landlady was

an exceedingly able woman, who had "roughed it" along the line for a number of years, and she declared that she knew Charley H. as well as she wanted to, and while she had little doubt as to his complicity in the matter, she was n't "going to see him given up to any —— Greaser; but if a *white* man

MEXICAN BIT, BRIDLE, AND SPURS.

wanted him, that was a different thing." One evening, at dusk, a horseman rode quietly up to our hotel door and inquired for the landlady; but before she had time to appear, one of the loungers about whispered something in his ear that sent him ambling rapidly down the street. It was no other than

the mysterious third party, whom the police — a squad at that time being in our very court — were anxiously looking for; but doubtless before another sun had set Texas had claimed another recreant citizen.

Many of the frontier settlements of Mexico are yet in the condition of that Western colony which hung a tinker for an offence of the blacksmith, — because there were two tinkers in town and but one son of Vulcan. Policy plays a most important part in the decisions of justice; and hence it is that the Mexican army is full of red-handed murderers, who have only escaped being shot by shouldering muskets and becoming themselves defenders of the laws.

In an enumeration of the attractions of Monterey I should not forget the Plaza of Zaragoza, with its fountain and flowers, with the municipal palace on one side, and the cathedral on the other. In the palace are still shown three of the muskets with which Maximilian was shot, and other curiosities. The market building, the Parian, towers above just such a mat-covered pavement as is described in my chapter on the markets of Mexico, with filthy women and miserable men crouched beneath frail tula shelters, and guarding contemptible collections of fruit and vegetables. With an escort, ladies might visit the bishop's palace, now gone to decay and used as military quarters, the Campo Santo, or cemetery, and the "house in the tree," where a small structure is perched in the branches of a giant ceiba.

The bull-ring of Monterey is merely an enclosure of poles, so frail that an animal of spirit could demolish it in a single furious charge; not an amphitheatre such as we find in the federal district. Neither are there here any genuine Andalusian bull-fighters, imported from Spain, as in the capital, who rarely fail to drive the rapier straight to the spinal marrow; nor was my blood stirred by the rabble in Monterey as it was at the first bull-fight I saw in Mexico, under the shadow of the hill of Chapultepec. As for another Mexican institution, the cock-pit, it is nothing more than a circular shed with thatched and pointed roof.

South from Monterey a diligence formerly ran to the city of Mexico; but the constantly advancing railroad has pushed its

THE PARIAN.

terminal stations nearer and nearer together, until it now merely covers the distance as yet untraversed by the iron horse. In company with the General Superintendent of the "National," I went over the road to the end of the rails, where horses and an ambulance were in waiting to convey him and his escort south to San Luis Potosi. A son of the lamented General Ord, a dashing young horseman, accompanied him as *compañero*, whom I had met two years previously with his father in Mexico City.

COCK-PIT, MONTEREY.

The gallant old soldier was as well known on the Border as the Mexican General, Treviño, who married his daughter, and whose aspirations for the presidency, as well as his capitulation to his opponent, Diaz, are well known. We had an excellent dinner in a construction car, and then, after gathering the details of the recent murder of his subordinate, the Swedish contractor, Superintendent Gardner gave orders to march, and his little cavalcade tightened their saddle-girths, buckled on rifle and revolver, and were soon hidden from my sight in a cloud of dust.

The next place of importance south of Monterey is Saltillo, capital of the State of Coahuila, about sixty-five miles distant, a city of note, containing seventeen thousand inhabitants, with cotton factories and various native industries. The valley in which it is situated is considered fertile. The town lies on the slope of a hill; its streets are well paved; some of its buildings, as the church and bull-ring, are worthy of notice, and its alameda so fine as to attract the attention of every visitor. About seven miles beyond is the hamlet of Buenavista, famous for the battle fought there, on the 23d of February, 1847, between the forces of General Taylor and Santa Anna. The result of that battle was largely due to the almost impregnable position selected by Taylor in the pass of Angostura, where Santa Anna could not use his artillery or cavalry, nor derive much benefit from the great numerical superiority of his infantry. At all events, the five thousand Americans sent ten thousand Mexicans flying southward, so thoroughly whipped that the whole northern province remained in their undisputed possession. Agua Nueva, the village in which the American army was encamped at the approach of Santa Anna, lies at the upper end of a beautiful vale, called *La Encantada*, — the Enchanted Valley. Not finding this an advantageous position, Taylor fell back to Angostura, — the Narrow Pass, — where the valley, some six miles wide below, narrows to less than two.

The next great city south is San Luis Potosi, at a distance of 385 kilometres, say 275 miles, from Monterey. The intervening country is remarkably dry and sterile, and the plains, as described by a recent traveller, "dusty, monotonous, covered with cacti, aloes, and yucca, — yucca, aloes, and cacti," — almost exclusively given up to vast haciendas with infrequent towns and ranchos. It is in the main a wretched and thinly populated region, so dry that wells and water-tanks are objects of interest, even of solicitude, and give names to various hamlets, as *Agua Nueva* and *Tanque la Vaca*. No more interesting object will be seen than the mountain of Catorce, with its famous mining town, about which are clustered traditions of bonanzas such as few silver regions can lay claim to.

San Luis will interest a traveller coming from the North as a thoroughly representative metropolis, in streets and architecture, of Southern Mexico. It contains numerous churches, which possess excellent paintings, a fine cathedral, and an attractive alameda. The famous silver mines of Potosi, now fallen in and neglected, in a cerro within sight of the city, once produced enormously, and from one of them, it is said, was obtained the largest piece of solid gold ever found in America. It was sent to the king of Spain, who in return gave a large clock, which may be seen in the cathedral to-day. The city has a population of forty-five thousand, and is destined to be an important railway centre, as not only does the National, coming down from the north, connect it with Monterey and the United States, and, passing through, extend its trade to Mexico City, but a branch of the Central, leaving the trunk line at Leon, is projected to Tampico, 300 miles distant, on the Gulf of Mexico.

Passing beyond the southern border of the State of San Luis, we enter the great and famous hacienda of Jaral, which was — perhaps is now — the largest in Mexico. Half a century ago, its proprietor, the Marquis of Jaral, was reputed the largest land-owner in the world, owning over three hundred thousand head of live stock, and slaughtering annually sixty thousand sheep and goats. His hospitality was unbounded, but his oppression of the peons of his estate bore heavily upon them; he even razed the houses of a village, and scattered the inhabitants, to prevent them from getting a town charter, which would give them control of the land.

Next south is the town of San Felipe, 6,900 feet above the sea, and next Dolores Hidalgo, chiefly remarkable as the parish of the Mexican patriot, Padre Hidalgo, where the first note of liberty was sounded, in September, 1810. Directly south, situated in the midst of a fertile and beautiful champaign, is the flourishing city of Celaya, containing thirty thousand inhabitants. Here the two great railroads meet and cross; the Central coming up from Queretaro and Mexico, and the National from Acambaro and the capital. By the former it is 180 miles to Mexico City, passing through Queretaro, ancient Tula, and the

northern entrance into the valley; and by the latter 200 miles, through the large and quaint Indian cities of Acambaro and Maravatio, and the beautiful valley of Toluca.

From Saltillo, on the 24th of every month, a *conducta*, or silver train, starts south for the mines of Zacatecas, in charge of a noted conductor, who has safely transported millions of silver over this route. He has a band of excellent mules; his men are trusty and armed to the teeth, and his reputation is such that the *ladrones*, or robbers, always give him a wide berth. Being a most companionable and delightful man, he sometimes allows a traveller to join his caravan, and treats him like a prince. The march is leisurely made, the noonday halt is long, abundant time is allowed for hunting, and the fortunate guest is entertained with song and dancing at every hacienda. Notwithstanding that the completion of the railroad will obviate the necessity for horse or diligence, I think that, if again called upon to make the southward journey into Mexico, I shall seek out this courteous caballero and attach myself to his conducta

XXVIII.

ALONG THE RIO GRANDE VALLEY.

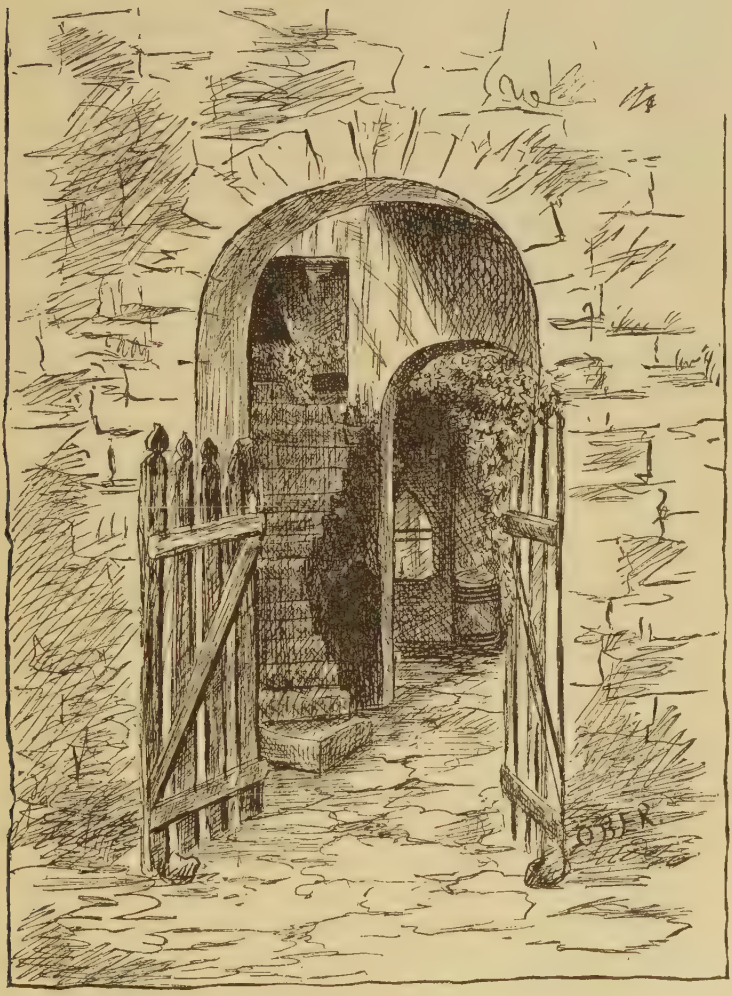
WE made the journey down from Monterey to Laredo in a day so hot that the ironwork of the cars, and even of the reclining chairs, was hardly bearable to the touch. At eight o'clock of the morning succeeding I boarded a pay-car of the Pecos and Rio Grande Railroad, and ran north some thirty miles, to visit the coal-fields which that line had but recently entered. We reached the principal mine, San Tomas, at ten, and on the high bank of the Rio Grande, which is here about a gunshot across, found an excellent dump and veins of coal, alternating with seams of slate, two and three feet in thickness. The coal is semi-bituminous, burns freely, is easily mined, and the capacity of the company is not equal to the demand. The main drive at San Tomas is about a thousand feet, with an air-shaft five hundred feet from the entrance. Some twenty miles beyond is another deposit, and back along the line are several experimental shafts searching for seams of sufficient width — five feet — for profitable working. The great want of Mexico is coal, with which to supply the locomotives of the great international roads; and this discovery of veins on the Rio Grande, right at the Mexican portal, is likely to prove of great value and convenience.

Taking a "sleeper" on the "International and Great Northern Road," I departed from Laredo that night, and awoke next morning at San Antonio, which place I had left ten days previously, after a most delightful night of repose. If any place in the Southwest could tempt me to depart from my subject awhile and describe other sections than those pertaining to Mexico, it would be San Antonio, with its springs and parks, old mission build-

ing, and most perfect climate. But if we linger too long in Border land we shall not penetrate the region beyond. A day of delight I spent in San Antonio, and then, as I had returned this distance northward merely to make connection with another portion of Old Mexico, I took train westward for Eagle Pass and Piedras Negras.

Two vast systems, the Gould, or "Missouri Pacific," coming down from Saint Louis, and the Huntington-Pierce combination, the connecting link in the lengthy chain between San Francisco and New Orleans, meet here and cross. The "Sunset Route" — as this eastern division of the southern transcontinental line is called — owes its existence and success to the indomitable pluck, faith, and energy of Col. T. W. Pierce, of Massachusetts, who long ago, when railroads were almost unknown in Texas, projected the "Galveston, Harrisburg, and San Antonio" road, from the Gulf of Mexico to the great plains, stretching away, vast and unknown, in the direction of the Western Ocean. Mile by mile, almost foot by foot, struggling against difficulties almost insuperable, this road was steadily pushed forward, until it at last reached San Antonio, and its engineers were received with ovations by the delighted inhabitants. Thence it sped westward into the region of sunset, taking its course through a fertile belt of counties; and perhaps might not have stopped this side of the Pacific itself, had not expediency suggested a halt. Eastward, feeling its way cautiously at first, but later progressing by impetuous leaps, another road was aiming to cross the vast Texan prairies. Another man, world-renowned for sagacity and bold emprise, C. P. Huntington, the Railroad King of California, had his eye upon this same territory. The result was a compromise, and the "Southern Pacific" completed the connections which made the Crescent City a neighbor to the Golden Gate. This gigantic enterprise, by which the East and West were united by a perennial route with a summer climate, was only perfected, and the last spike driven, four months previous to my journey over it. Yet here I was, rolling smoothly along, without jolt or jar, over a road perfect in every appointment, and in a train con-

taining sleepers and palace cars, and with every convenience for travellers. And in this region, formerly so famous for the



THE HOTEL PORTAL.

exploits of the Border ruffian, all my changes, by a strange chance, were made at midnight, in quiet and perfect security.

It was twelve o'clock when we reached Spofford Junction,

where I left the Sunset Route and took its Mexican spur, the "International," for Eagle Pass and Mexico. The train I left sped westward, after exchanging news with the "California Express" going eastward. How strange it seemed, this meeting in the night, in the centre of an arid plain, of messengers respectively from the Mississippi and the Pacific! The place of meeting, named after the attorney of the road, R. S. Spofford, Esq., consisted, at the time of my arrival, of a few tents and shanties, while the land about, seen by moonlight, seemed sterile. For all that, it is destined to be an important station, when direct connections are made with the North.

In the gray dawn of a cool morning I walked through the straggling suburbs of Eagle Pass and sought a hotel. No one was stirring, but the hotel door was wide open, so I marched into the first vacant room, lay down on the bed, and pieced out my broken night's rest with a nap. After a breakfast of good quality, I strolled about the town, and then, taking my "gripsack" and revolver, went over the Rio Grande into Mexico. Eagle Pass possesses, in respect to local attractions, few advantages over Laredo, its rival down the river. Although the natural outlet of Mexican trade, lying at the entrance into the most fertile region of the Mexican Border, it will not progress with the rapidity of the southern town, but ten years hence will probably be a more prosperous city. My reasons for predicting this will appear, as we go over the length of railroad already built into Mexico.

In the language of the local paper, "The Maverick," which was started only the week before my arrival, Eagle Pass has had no "great big boom"; but since the advent of the railroad within her precincts, there has been a steady, substantial improvement and growth. The latest and surest indications of an advanced state of civilization, ice factories and telephones, may be found here, and at least one enterprising merchant has run one of the latter across the Border, as witness the following from the paper previously mentioned: "Jim Riddle has placed his Eagle Pass and Piedras Negras stores in connection by a telephone. We have heard of men who were 'penny-wise and

pound-foolish,' but Jim ain't that kind of a hair-pin." If we needed further assurance that a future was in store for this enterprising town, we may surely find it in an item to the effect that "Hop Lee, Esq., a Celestian of great experience in the 'washee-washee' line," had opened a laundry opposite the post-office.

No town on the Border is going to retrograde with a live paper like "The Maverick" to guard its interests; and we heartily join in the invitation extended by the editor to a contemporary, to "shake" on his expressions of good will.

I crossed the Rio Grande over a temporary or "low-water" bridge, which had been thrown over in six weeks; the permanent one—if one can be permanent, in that terrible stream of floods and surprises—was then building, with an iron superstructure, and with six massive piers of cut granite founded on the bed-rock of the river. The town on the Mexican side of the river is Piedras Negras, attractive despite its filth and the squalor of many of its inhabitants. It is of stone and adobe, and lies about a mile away from the railroad station, which was then surrounded with tents, and houses in process of construction. Presenting my credentials, I was permitted to pass to the end of the track, in a box-car half filled with railroad ties, which every jolt of the train set sliding about in a most alarming manner.

Through the region having an outlet at Eagle Pass, formerly ran the great highway from Durango and Chihuahua and the rich Laguna country, northward, to San Antonio and St. Louis. The surface is nearly level, the soil fairly fertile, the crops of corn quite excellent, and the fields large, only needing irrigation to make them highly productive. Cultivation is not now extensive, as all available labor is employed on the railroad.

An immense trade was formerly conducted over this route by means of caravans, or trains, which also ran down to Chihuahua from St. Louis by way of Santa Fé and El Paso, a distance of over fifteen hundred miles; but later on, from Presidio del Norte and San Antonio. All this is changed since the advent of the railroad; but a picture of the trains in those old caravan days, by Mr. Bartlett, the United States Boundary Commissioner, may not come amiss. "If a merchant here desires to

make his purchases himself in New York, or our other great markets, he must leave here in the fall, when it will require forty to fifty days to reach his destination by the way of New Orleans. His goods must then be purchased and shipped to Indianola, on the Gulf of Mexico, to be sent to San Antonio; or to St. Louis, and thence by water to Independence. Now comes the most difficult part of the transportation: wagons, mules, harness, and the various trappings, must be purchased, and teamsters procured, — all of which requires much time and

MEXICAN CART.

a large outlay. The large Missouri wagons, which carry from 5,000 to 5,500 pounds each, cost, all equipped, from $1,200 to $1,300 each, and twenty of these, which is not a large train, $26,000. Then each team must have its teamster, at $25 per month, and a wagon-master, or director of the train, at $100. Besides the ten mules to each team, fifteen or twenty extra are required, as on their long journeys accidents cannot be avoided. Men to herd and take care of the animals must also be provided, and, finally, provisions for the journey. This will give an idea of the expense of fitting out a caravan, or train; and if the merchant gets back with his goods in ten months from the time he left, without encounters from hostile Indians, or the loss of any of

his wagons or their contents, in fording streams and otherwise, he may consider himself fortunate."

This was written in 1852; thirty years later, the railroad brought with it a change, and American goods now flood the market of Chihuahua at a slight advance over prices prevailing in the North.

Relics of that age of wooden wheels, when carts without a particle of iron in their composition were solely used by the native Mexicans, yet survive. All along the Border, as well as in the interior of Mexico, we meet with these *carretas*, with wheels hewn from a single block of wood, and yoked to the patient bulls or oxen by a rigid cross-bar lashed to their horns.

My companions in the box-car were about equally natives of Texas and Mexico, whose conversation was chiefly of bull-fights and cock-pits. Piedras Negras, they declared, was full of thieves and murderers, — all Mexicans according to the Texans, but all Texans according to the Mexicans.

From the foreman of the gang I obtained some valuable information regarding the difficulties attending railway construction on the Border, and the jealousy with which the Mexican defends his prerogative. It was only the week before, he said, that his hand-car ran down a "Greaser" on horseback, by which half his men were seriously injured, and the horse killed. Unfortunately, he said, the Greaser was uninjured, and lay in wait for an opportunity for revenge, and shot at him as he was wiring a telegraph pole. A man up a telegraph pole would offer, presumably, a fair mark; yet the Mexican missed him, and the railroad man, descending hurriedly, brought him to terms, after a short, though exciting chase.

During one of our frequent breakings-up a jug of molasses was smashed, which proved a double disappointment, as the men thereby lost their sweetening, and we lost our seats on the floor. At about four o'clock in the afternoon we reached the end of track, having passed two towns of considerable size, though built of adobe and of the meanest sort, and through fifty miles of a country already attracting the attention of Texan rancheros. We met one of these worthies, a stalwart young

American, with a carbine slung to his saddle and a six-shooter belted about his waist, guarding a large flock of sheep.

This "International" road, the Mexican offshoot of the "Sunset" system, pursues a southwesterly course toward the capital of Durango, where it will connect with the Central Railroad. If continued on from Durango, it will end eventually at the Pacific, at some point, depending upon a practicable pass through the Sierra Madres and a sheltered harbor with navi-

INTERNATIONAL BRIDGE.
(Over the Rio Grande.)

gable channel. It will thus form a great and much-needed transcontinental line between the Eastern United States and the Pacific Ocean; and, as it is being built without subsidy, it can choose its own route, and so seek out the territory richest in mining and agriculture. It enters first the great State of Coahuila, which contains two cities, eleven towns, and numerous haciendas and ranchos. The cities of Parras and Monclova are flourishing, productive centres, while the Sabinas valley contains bodies of extremely fertile land, and the Laguna country the only lakes of any extent north of Chapala and the valley of Mexico. A spur southward from Monclova can connect with

the "National" system at Saltillo, whence is a straight course to San Luis Potosi and Mexico City.

This system, then, when perfected, will control a rich agricultural region, and will draw to itself, by branches and independent lines, the products of the valuable mines of the sierras. Mining operations in Coahuila are not now active, but were formerly, in districts now deserted, and which may revive with the coming of the railroad. Iron, in a pure state and in great masses, is found in the Sierra del Valle, and at other points, and copper, lead, amianthus, nitre, and sulphur, in various districts. A great furor was created, a few years ago, about the mineral deposits of the Sierra Mojada, which lie in a desert country, one hundred miles distant from the nearest centre of population. In the Government Report (Mexican) one hundred and forty mines are enumerated, showing nearly every mineral found in Mexico. It is supposed that this region will be profitably opened again when entered by the railroad, and hidden mines brought to light that the wild nature of the country has hitherto kept secret.

At the construction camp, where I was given a bunk by the physician in charge, and dined with the well-known contractors, the Monroe Brothers of California, I had an excellent opportunity of witnessing the wonderful operation of track-laying. At half-past six next morning, the advance engine blew its whistle for all hands to report for duty, and started for the front, pushing ahead of it a long line of platform cars laden with ties and rails. Each car contained thirty rails, fifteen on a side, sufficient for four hundred and fifty feet of track. A mule pulled it to the end of the rails laid the day preceding, when four men, armed with powerful tongs, seized a rail, two on each side, and ran it out, before the car had well come to a halt. "Steady," says the foreman; "drop," and it falls with a clang on the sleepers, while the other side does the same; the old mule draws the car ahead, and the process is repeated. Sharp after them come the spikers, two sinewy negroes in advance, who drive so rapidly that their strokes keep up a running clatter, and who do all the heavy work, the Mexicans not being up to it. Four gangs then

follow behind the iron-layers on each side of the track, each one taking every fourth spike; meanwhile men are screwing up the bolts and nuts, and boys are dropping and gathering up the spikes; and before one has ceased to wonder at the rapidity at which the work goes on, the load is laid, and another is brought up; the procession constantly moves, leaving behind it an iron trail which progresses at the rate of over a mile a day.

At ten o'clock the telegraph men came along with a hand-car, on which was a revolving creel of wire, which was run out as they went along. A man took a loop of wire, climbed a pole, — not one was in sight at daybreak, — and attached it, while two companions tightened it on the stretch ahead. Connection was made with our car by a copper wire, and we were in correspondence with all the world, in a country which had been surveyed less than ninety days, in a valley in which not a tie spanned the road-bed ten days previously, and at a point at which the rails supporting our car were only dropped the day before!

Even so progresses the "North American invasion," from four several points at once, and constantly moving its advance guard a mile a day nearer the Mexican capital. Well may it cause the reflecting Mexican to tremble, and the unthinking to wonder! Here, as at Monterey, the "Greaser" makes his feeble protest against the inevitable advance; he cannot block the wheels of the engine, but he can annoy the engineer; so he rides his horse over the track, heedless of warning whistle, and drives his cattle in front of the locomotive. Down in the interior of the republic one of these conceited rancheros tried to stop an engine by lassoing the smoke-stack; as the lariat was a tough one, and firmly attached to the saddle, it may not be necessary to add that he did not repeat that experiment, — at least not in Mexico.

From the coming of the steam-horse, indeed, a new industry has sprung. Formerly, the scurvy and hide-bound cattle of this region were considered dear at ten dollars a head; now, they are scarce at fifty. And why? Because the Mexican has passed a law that every animal killed on the road shall be paid for to the tune of sixty dollars! And now these guileless "Greasers" are flocking to the railroad with their flocks and herds. Goats and

sheep, emaciated cows and bulls, are as thick along the track as tenpins in an alley; no sooner is one knocked over than its place is taken by another, urged up the bank by its exultant owner.

The engine emits a constant whistle of alarm, while the engineer pours out a stream of blasphemy that would terrify any but a Mexican, to whom profanity is as mother's milk. The very first telegram that came over the wire to our car was to warn the road-master that the captain of police was in waiting for him up the road, as an old ten-dollar bull had been killed the day before, and the grief of its owner was great. At the same time, a Mexican was killed, — probably as he was pushing the bull on to the track; and as the engineer had "skipped the Border," the only thing clear to the officials now was to calaboose the road-master. The gentleman whose presence was so much desired by them was my companion back to the river; and he went very cheerfully, with the prospect of that calaboose in the distance. But he was disposed to take a somewhat sinister view of the "Mexican movement," I fear, from some remarks he casually let drop on the way.

"Now," said he, calling my attention to the letters painted on every car, — F. C. I. M., — "what do you suppose those stand for?"

"Why, that, I presume, is an abbreviation for the name of the company, in Spanish, — Ferro Carril Internacional Mexicana."

"No, sir," said he, with emphasis, "it means Fools Caught in Mexico, in the ranks of which your humble servant does n't propose to train any longer than he can help."

He informed me that the road was being laid with fifty and sixty pound rails, the former from England and the latter from Germany, which are admitted in bond, duty free, at New Orleans. The Mexican laborers he found willing to work, though weak at first, but they rapidly improved with good food, to which all their lives they have been strangers.

We started back on a grain car, receiving a cheerful send-off from the telegraph operator, to the effect that five men had been murdered up the track by the Kickapoos, — which we fully

believed; and that four Kickapoos had been killed by the Mexican soldiers, — which we doubted.

The car was filled with dirty Mexicans, who were most intolerably saucy, but with whom we were soon quits, by leaving them switched off on a siding till morning, while we travelled for the Border on the engine. It was just sunset as we slid away, and left them howling lamentations at being left to the mercies of *Los Indios barbaros*, the Kickapoos. I don't believe there were ten Indians in the State; but even one is enough to cause a village full of Mexicans to run like smitten curs.

Reaching the Rio Escondido, or Lost River, we found the rails only "fourth-spiked," but we rattled over them safely, stopping to take water at the end of the bridge. Our road-master, thinking to astonish the keeper in charge of the water-tank, who lived here all alone, gave out that seventeen men had been murdered down the track, that all the section hands had fled, and that we had five Kickapoo "stiffs" aboard, being all we had "saved" of a party of fifty or more. To which information the waterman calmly replied, that he guessed the boys down the track had forgotten how to use their Winchesters. This was a rebuke to our friend, who said no more about the mythical "stiffs," and we went on without delay to the Rio Grande.

Orders from the superintendent arrested our engine on the southern bank of the river, and an alcalde and posse arrested our road-master, before he could secure his "grip" and a few necessary articles, and shake from his heels the mud of this land of "God and Liberty." We could not help him, and, as he went off to cool his heels in the calaboose, he earnestly advised us to depart at once from this wretched region, unless we wished to swell the ranks of the "fools caught in Mexico," with various phrases reflecting on the officials, which it is needless to repeat.

The moonlight guided us over the low-water bridge and along the river-bottom, a mile or so, to the town, where I reached the hotel at about eleven o'clock, and in company with a young man who had been "run out" of the Sabinas valley on account of some infirmity of temper. I inquired what it was that had particularly incensed the Mexicans, and he said that it was only be-

PASO DEL NORTE.

cause they could n't understand his Spanish. He had given his orders to them in a tone loud enough to be heard over the entire valley of the Sabinas, but they persisted in not understanding him. "And so," he continued, "I pulled out a six-shooter and said, 'You miserable, God-forsaken yeller-bellies, and scum of soap-grease, do you understand that?'"

"And did they?"

"Well, I should smile. D' you s'pose I 'd leave a good position of a hundred and fifty a month, and found, if I did n't *have* to?"

I left Eagle Pass with the silvery moonlight flooding its sandy streets; another midnight connection placed me aboard the California Express, and I awoke next morning at the Pecos River. The scenery here is grand enough to warrant a visit for no other purpose than to view it, for the track runs along the Rio Grande, beneath stupendous cliffs hollowed into natural caves. We crossed the Rio Pecos at Painted Cave, 224 miles from San Antonio, over an iron bridge that seemed hundreds of feet above the foaming river, while the mighty walls of rock towered high over the solitary station and the slender structure that spanned the chasm. Above the Pecos, the water of the Rio Grande seems clear and blue; below it, yellow and turbid. Both rivers flow rapidly along between gaunt and gray rock-ribbed banks, where the vegetation is solely bear-grass, and yucca, and bright flowers, with no succulent grass, and no living thing in sight.

Twenty miles farther on is Langtry, where, in a construction-car switched off on a siding, we found an excellent breakfast awaiting us. There were no buildings here but the station, yet I read in an El Paso paper of that week, "A big boom seems to have struck Langtry on the 'Sunset'; the deputy surveyor of Pecos County is consulting with Mr. Roy Bean about laying off lots for a hotel and a stockyard in this enterprising town." I said to myself, as I read this item, that "big boom" must have knocked all the buildings clean out of the place; but the real significance of the paragraph is shown in an additional morsel of news: "Mr. Roy Bean is now *ready to sell a few choice lots*

in this enterprising city." Yet I am ready to believe, knowing the astonishingly rapid growth of those frontier towns, that Langtry may be, at the present time of writing, a large and flourishing place.

Our dinner we took at Maxon Springs, 350 miles from El Paso, where the usual fine station buildings and water-tank, with a telegraph office in a side-tracked baggage car, comprised the town. Beyond the curious hills which surround this place, we passed a "prairie schooner" and a Mexican ox-team, encamped to escape the oppressive heat, while their poor animals sought vainly for a dinner off the parched and scanty herbage. It was a dreary country, the only other animate objects in view being the Chinese section hands, whose tents of flimsy canvas we occasionally passed, a hawk now and then, or a coyote. A fellow-passenger aptly pictured it, in a single sentence, as a region so poor that even a crow "would have to tote his rations over it."

But the land improves as we go westward, and at Murphysville, 230 miles from El Paso, an active goat might get a good day's feed from less than an acre. Twenty-five miles back from this station is Fort Davis, an important military post, and southwest, about eighty miles distant, on the Rio Grande, is Presidio del Norte, once an important frontier town and the future initial point, perhaps, of the Mexican branch of a transcontinental railroad. The run to Valentine, 159 miles from El Paso, is over finer territory, which is eagerly sought by rancheros, who are willing to pay even four dollars an acre for it, as they are crowded out of the better lands to the north and east. At Valentine, which is a coaling station, with extensive sheds, a turn-table, and a round-house, we got an excellent supper, and then steamed on again, over a road everywhere smooth and excellent, with fat and lively deer skipping off towards the hills, coyotes loping away from the track, and prairie-dog villages appearing one after the other. Darkness settled about us, leaving the impression that we had now reached a land of plenty, and we saw no more of Texas until three o'clock next morning, when we ran into El Paso.

OLD CHURCH, PASO DEL NORTE.

An omnibus was in waiting, and into it I climbed, but had hardly seated myself when the vehicle — which had rumbled off with great flourish and bluster — stopped, and the frouzy-headed conductor poked his face in and said, "Fork over!"

"How much?"

"Half-dollar."

"All right, drive on."

"On where?"

"Why, to the hotel, of course."

"That's just where we be now, stranger."

I was too sleepy to expostulate over the extortion, but descended to the "office," registered, and was assigned a room at the "Central," then the largest hotel in town, and by all odds the dirtiest in the State, though fairly served. El Paso, situated in the extreme western part of Texas, lies 500 miles from Spofford Junction and 633 from San Antonio. In approaching it, I had run along two sides of an obtuse-angled triangle through the great State of Texas, leaving out any trips southward from Eagle Pass and San Antonio, comprising above a thousand miles across its territory alone. The town — whose inhabitants will doubtless be mortally offended because I do not call it a city — is about half a mile across, and situated in the centre of a verdureless, mud-colored plain, with a semicircle of gravelly hills on one side and the Rio Grande on another.

Its buildings are mainly new, as houses of wood and brick are fast replacing the old adobe hovels; there are several hotels, numerous, large, and well-supplied stores, two banks, many good residences going up in the suburbs, and plenty of room for expansion. There are several newspapers here, one of which, "The Times," displays energy, ability, and enterprise.

There are abundant indications that El Paso will grow to the proportions of a great and perhaps attractive city, as it has an advantageous situation, nearly four thousand feet above sea level, and is entered by several great railroads. The "Sunset Route" passes through it from east to west; the Texas Pacific meets it here, affording the shortest route directly across Northern Texas to St. Louis; and the Atchison, Topeka, and Santa Fé comes

down from the North, across New Mexico and a most attractive country, from the Missouri River. Nearly all the progress of El Paso is recent, and is due to these railroads.

The valley in which El Paso is situated is from a mile to three miles wide, and nearly forty miles in length, possesses a soil which is extremely productive when well irrigated, yielding excellent crops of wheat in particular, and its climate is remarkably fine, equalling that of Santa Fé and Mexico City. Above the town is a small kiosk, perched on a spur of the hills, whence is obtained a delightful view, at the feet of the observer, over the town and down the Rio Grande valley; where the river runs is green, while all else is brown and bare, as far as the eye can reach, even to the distant mountains of Chihuahua. The banks of the Rio Grande — the Rio Bravo del Norte — here are low and easily approached, while at Eagle Pass and Laredo they are high; though the volume of water is not appreciably less and the current is rapid; this town also suffers from the terrific storms of sand that affect the settlements farther down the river.

Water-works now supply the city, and street-cars run from the principal depots through the town and over the river to the Mexican settlement. Two bridges here cross the Rio Grande, one belonging to the Central Railroad, and the other to the municipality.

Across the river from El Paso is Paso del Norte, the most northerly town of any size in Mexico, as well as the oldest in this region, having been founded, as a mission, at or near the close of the seventeenth century, probably in 1680. It is an unpretentious mud village, which is content to remain so, if those restless Americanos from over the Border will only allow it to. But they will not, and the Yankee "City of the Pass," like Laredo, is pushing its apathetic Mexican sister into prominence. About the only buildings not of adobe are those composing the offices of the Mexican Central, while the other conspicuous and native structures are the old church and the mud fort. Both are ancient, but the church is of great age, dating probably from that period when the Spaniards were driven south from Santa Fé by the Pueblo Indians. Amongst a heap of old church

CHURCH INTERIOR, PASO DEL NORTE.

registers thrown carelessly into a corner of the chapel, I saw one of the year 1682. The sexton who displays them is a curiosity of the Border, and will, for a small fee, eagerly conduct visitors through the little church.

I secured, and herewith present, a picture of the interior of that lonely church on the Mexican Border, which was far more interesting to me than that of the great cathedral in Mexico City, since its ornaments and paraphernalia are reduced to the simplest requirements for confessional and pulpit service, and the requisite decoration of Virgin and altar-piece. Add in imagination a group of kneeling figures before the altar rail, and you have all the characteristic features of a church interior throughout Mexico. Farther into the republic, the houses of worship are more lavishly adorned, but here, doubtless, the clergy feared to make the usual display of gilded carving and paste ornaments, lest the cupidity of the Border ruffian should excite him to lay sacrilegious hands thereon. A grateful coolness, even in the hottest weather, always pervades these churches, owing to the thickness of their walls, whether of stone or adobe. Great beams, ornately carved in lilies and roses, support the tiled roof of this particular structure, which is not so high as some sanctuaries I have seen in Indian pueblos.

The population of this town, of about five thousand inhabitants, differs in no particular from that of the southern settlements of the Border, but the place itself is more attractive. In front of the church is a barren plazuela, which lies at the head of a valley that follows the river on its course for many a mile, and here is held the market, which is well worth inspection.

Irrigation brings fertility to fruitful gardens, and vineyards which produce excellent grapes, and raisins which are eaten stewed like plums. El Paso wine is in great demand, as it has a strong body and has the flavor of Malaga, when mellowed by age. The grape is large, blue, rich, and juicy, though a white variety is raised with the taste of Muscadine. A population of above fifteen thousand supports itself upon the products of the valley, and the wheat, pears, peaches, onions, and apples of the cooler portions of the mountain range.

But with the exception of the fruit trees, and the willows and poplars of the river-banks, the *chaparral* is about the only vegetation of the region. "The exquisite climate, at a level of nearly four thousand feet above the sea, and these environs of cultivated land, contrasting forcibly in their vivid green with the gray alluvial hills, and rocky mountain crests, impart to the place a charm peculiar to all the scenery of Northern Mexico, which has something Levantic, or of a North African character." Its gardens and vineyards, and its slow-running *acequias*, meandering through narrow streets and adobe walls, give to Paso del Norte an aspect different from other frontier towns, as if a fragment of Southern Mexico had been transported here across the intervening deserts.

XXIX.

CHIHUAHUA, THE GREAT FRONTIER STATE.

AT the time of the revolt of the Indians of New Mexico, in 1680, the Spanish colonists, driven out of Santa Fé, retreated southward along the Rio Grande to Paso del Norte, — the North Pass, — where they intrenched themselves, and remained until reinforcements reached them from Mexico.

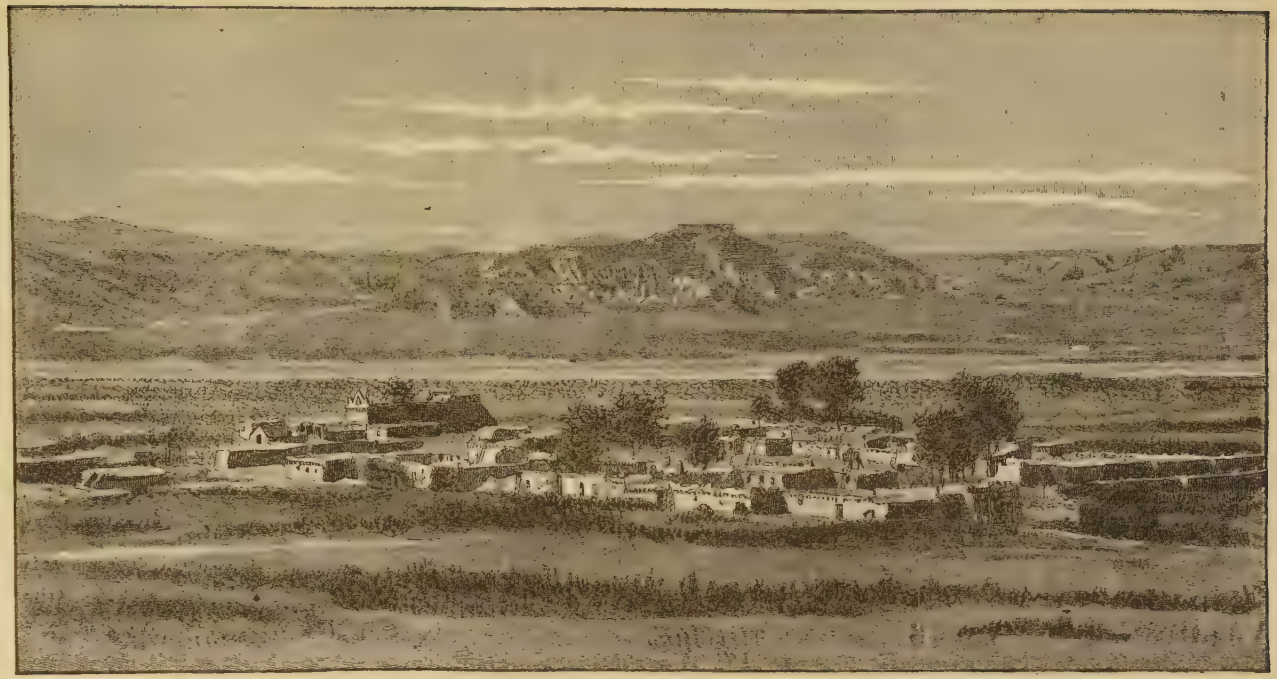
The most fertile valleys in the Rio Grande region lie to the northward of El Paso, and were occupied, even long before the arrival of the Spaniards, by Indians, who dwelt in settled communities, and were partially civilized. These Pueblo Indians had not penetrated into the territory now pertaining to Old Mexico, unless the ruins of the Casas Grandes — to which I shall allude further on — belong to them, and are found mainly in New Mexico and Arizona. Coming down from the north, pursuing the course followed by the little army of Spanish fugitives of two hundred years ago, a great railroad line — a system, rather, with its giant trunk and numerous feeders — bisects New Mexico, the territory of the Pueblos, and crosses the Rio Grande at El Paso. At Paso del Norte it enters Old Mexico as the "Mexican Central," though still under the guidance of the same wise and sagacious capitalists who projected the Atchison, Topeka, and Santa Fé system westward from the Missouri River, and southward to the Mexican frontier.

In the fine station at El Paso your baggage is checked for Mexico, and at the still finer station of the "Central," in Paso del Norte, across the river, it goes through the farce of an examination by the customs officials, and is re-checked to Chihuahua City, or farther on. But you yourself are not disturbed by even a change of cars, and may retain your seat without molestation,

and glide so gently over the Border as to be wholly unaware that you have changed your domicil from the United States to Mexico. It was thus that I found myself for a third time entering Mexican territory, within three weeks of my departure from St. Louis, and after having put behind me a total distance (including side trips) of over four thousand miles, over roads that would put to shame many of our Eastern tracks, both for smoothness and for solidity of construction.

Chihuahua[1] (pronounced Chee-waw'-waw) is the largest State in the Mexican confederation, having an area of 120,000 square miles. Sand and alkali plains occupy the greater portion of the territory not upheaved into mountains, and it is computed that at least one half its surface is unfit for cultivation, or even for occupation, by civilized man. But along the rivers, about some of the *lagunas*, and in the mountain valleys, the soil is fertile, and produces excellent crops of wheat, corn, flax, beans, barley, cotton, and the fruits of the temperate zone, including the best grapes for wine manufacture in the country. Grazing is the chief occupation, and immense herds are raised and sent over the Border for a market, some of the ranches numbering their sheep, horses, and cattle by the hundred thousand. Vegetation is sparse, except in the mountains and on the borders of the streams, where also good timber is said to be abundant. The climate is temperate on the uplands, and, though snow falls a foot or two in depth on the mountains, extreme heat is sometimes experienced in the valleys. A peculiarity of the desert region of Chihuahua, — which also applies to the barren tracts of contiguous Texas and New Mexico, as well as Arizona, — is that nearly all the vegetation is supplied with thorns or spines. "First come the endless variety of cacti; these are seen from the tiny plant not larger than the finger to the giant *petahaya*, raising its tall stem to the height of fifty feet. Then follow

[1] Probably a Tarumare name, signifying a pleasant place of abode. The Tarumares are Indians living in the hills of Chihuahua, who derive their name from a curious game or race, in which they run from morning to sunset, driving before them a large ball. The numerous towns and villages with names terminating in *chic* also pertain to, or were formerly inhabited by, these Indians.



A PUEBLO.

the mesquit (from the Aztec word *mezquitl*), the tornilla, the fouquiera, the agaves and yuccas, all armed with spikes. But these thorny and angular forms are not confined to animal and vegetable life; they seem to be extended to nature, even in the grandest aspects in which she here appears, as the mountain ridges present the most singular summits, terminating in pyramidal points, or resembling towers and minarets. Thus is everything in these desert regions peculiar." While the parched and desert plains are nearly destitute of birds and quadrupeds, they abound, says a very observant writer, in the greatest variety of reptiles and insects, such as lizards, "horned frogs," tarantulas, *alacranes* (or scorpions), and rattlesnakes. There are also moles, rats, mice, rabbits, and prairie-dogs, while the most conspicuous birds are the *paysano*, or chaparral cock, — which not only attacks the rattlesnake, but eats it voraciously, — and the omnipresent crow.

The distance from El Paso to Chihuahua, the capital of the State, is 225 miles, mainly through such arid plains as have just been described. The worst portion of the desert appears first, in the sand-hills, or *medanos*, which extend in a line some twenty miles in length, and through which the railroad ploughs its way directly southward. The sand is very light and fine, and is constantly shifting about, like ocean billows, exposing here and there the whitened bones of mules or cattle, which fell and perished here in the terrible caravan journeys of former years.

Through the sand-hills the old wagon trail formerly led, and many a train has been ambushed and many a driver murdered by the dreaded Apaches, who infested them until the advent of the railroad. Through the dreariest of desert regions our train steamed steadily southward, with no notable object in view until we reached San José, where, as we were sighing for the flesh-pots of El Paso, a stop was made, at an old car turned out on a side-track, and dinner was announced. It was an admirable meal, abundant in meats and vegetables, excellently cooked and well served, and we had a good half-hour to enjoy it in. It was pervaded by the genius of the great caterer of the Atchison Road, Fred Harvey, whose eating-houses are the best on any line west

of the Mississippi, and whose cattle are pastured on the green Kansas prairies, so that a toothsome steak is offered the traveller, whose portion elsewhere would be greasy frijoles or the tough integument of a Mexican bull.

A fantastic mountain had long been in sight, called Montezuma's Chair, and 113 miles from El Paso we reached a station named in memory of the Aztec monarch, where a beautiful house was being erected. The scenery did not materially change for the better, but wore the same terrible aspect of sterility, until the station of Gallego was sighted, 139 miles from Paso. Here is an adobe hacienda, a few miles away under the hills, from a spring near which the great water-tank at the track is supplied. It is surrounded by trees, and the pasturage seems good, but the very hills above have long been the lurking-place of the Apaches. A boy at the station told me that they had raided the hacienda but three days before, killed two men, and carried away seven women, — some of whom were rescued by General Crook, — and that one man had escaped to the station with two bullet-holes through his arm.

At San José we had seen a company of Mexican soldiers on their way to Casas Grandes, which lies on the border of the Apache stronghold, and is shown in the map given in the succeeding chapter. Leaving our line of travel southward for a moment, let us glance at these *Casas Grandes*, or Great Houses, buried in the solitary sierras of Northwestern Chihuahua. A river of this name takes its rise about a hundred miles northwest of the city of Chihuahua, and flows north toward the frontier, discharging into Lake Guzman. The valley of Casas Grandes is extremely fertile, about two miles wide, and occupied by a small village of Mexicans. It is a strategic point in the Apache campaign, and the last remnant of these barbarous Indians may be eventually captured at this place.

The " Great Houses," from which town, river, and valley take their name, are the ruins of structures of adobe that were erected here hundreds of years before the country was settled by the Spaniards. They face the cardinal points, and some of the walls still standing are thirty feet in height and five feet thick,

made of great blocks of adobe, and were undoubtedly built with successive terraces, like the Pueblo villages of New Mexico. The largest building must have been quite 800 feet in length by 250 in breadth. The group is the northernmost in Mexico, and is radically different from any other in the republic, though similar ruins are found in the present territory of Arizona, on the River Gila, and elsewhere. It may have been here in these very Casas Grandes that the Aztecs received their first impulse towards a migration southward, when a little bird whispered to their chief to go on; and their halting-places may perhaps be traced in the structures of stone and adobe, that extend in a long and zigzag line from one end of Mexico to the other.

CASAS GRANDES.

It has been proposed by engineers, to conduct the mountain streams into the desert plains, and fertilize them by a system of irrigation, by canals, or else by water obtained by the sinking of artesian wells. In this basin bisected by the railroad, there is thought to be a great depth of soil, the wash from the mountain slopes through ages of erosion, which would, if irrigated, produce two crops a year. The pasturage improves as the road runs south, and at Laguna it is fair, while at Encinillas, 180 miles from El Paso, it looks very inviting. We pass within sight of the Laguna of Encinillas, or Evergreen Oaks, which is about fifteen miles long by three wide (according to the season), and has pleasant grassy shores, about which great herds of large and long-horned cattle are feeding. Jack rabbits in great number, antelopes, and coyotes skip over the plain, while birds in abundance float upon and fly over the lake. A sand storm, forcible and penetrating, burst upon us as the train entered this plain,

hiding everything from sight, even the bases of the jasper hills which lie beyond the lake, among the trees on the border of which nestles a fortified hacienda with whitened walls. It belongs, with all the land lying along the track for nearly eighty miles, to Don Enrique Müller, an enterprising German resident of Chihuahua, and Don Luis Terrasus, the Governor of the State. It may be a profitable property, with its 70,000 head of cattle, when the Apaches are exterminated; but it has been repeatedly raided, and so late as September of 1883 a large number of valuable horses and cattle were driven off to the hills. Their shepherds and rancheros have been killed almost as fast as their places could be supplied; yet the proprietors bear their losses philosophically, as the supply of laborers is practically inexhaustible. A dozen miles from Encinillas is the adobe hamlet of Sauz, or Willow Dale, the only village on the road, where there are about a hundred willows, or cottonwoods, and springs, and streams.

Sacramento, where Colonel Doniphan, on his celebrated march in the early stage of the Mexican war, fought a decisive battle, lies eighteen miles beyond Sauz. The victory gained by the brave Doniphan opened to the United States troops the capital city of Chihuahua, less than twenty miles farther on, and which may be seen at a distance of nearly ten miles, as it stands upon an elevated plain without any intervening vegetation, and is thrown into strong relief against a barrier of mountains. The train rolls over its solid road-bed at a steady jog of twenty miles an hour, down over the dry and treeless plain; and just where the hills come together from either side and seem to forbid farther progress, there lies Chihuahua, its great church towers rising above its stone and adobe houses, with its chapel of Guadalupe at one end and the convent of San Francisco at the other. For a few miles before we reach the city, a band of green borders the eastern hills, — a tree-fringed river, which divides and runs around it, and then disappears amongst the hills.

The city of Chihuahua is built upon a bleak and barren plain, surrounded by bare and rocky mountains, at a height above the sea, 4,600 feet, that gives it a climate far famed for its salubrity.

There is probably no town in the United States, of the same number of inhabitants, that possesses so many fine buildings, or is built upon a plan of such lavish magnificenee, as this; for it owes its origin to the discovery of rich mines, and its noble edifices to the constant stream of silver that flowed from them during a very long period. Founded near the close of the seventeenth century, it rapidly assumed the proportions of a city, and at one time had more inhabitants than at the present day; but when the mines became exhausted, its population dwindled to less than 10,000, though now numbering 18,000. When the Spaniards were expelled, in 1821, the mines were entirely abandoned, and the ranches and haciendas likewise fell into decay. Indications of those times when the mines were in their greatest splendor remain in the vast heaps of silver scoriæ, of which many walls are built, and even houses, and " in which, according to trustworthy analysis, enough silver remains to make fresh smelting, under better and more economical management, a profitable undertaking." Looking to this end, a company has been formed, in Philadelphia, which has purchased all this wastage, and from which it hopes to realize a bonanza.

The train from El Paso arrives within sight of the city at dusk, passing through a colony pertaining to the railroad, where great machine-shops cover the ground, and where a round-house, with its stalls full of iron horses, is surrounded by hundreds of thousands of dollars' worth of railway material, and where the evidences are strong that an American town will soon develop that shall rival the capital city itself. It crosses a fine bridge, and comes to a halt at the station. True to Mexican tradition, the authorities would not allow the railroad to approach the city within the distance of a mile. Nor would they allow of the purchase of land by the company for building sites, lest an American town should be formed that could exist independently of their own. So a tramway now connects with the city, over the intervening mile of space, the most notable objects on the way being the heaps of silver slag, and the river that flows around and drains the town.

The city was well and regularly built, mainly of adobe, with

some stone buildings, with broad streets which were once well paved. It has the usual plaza, or central square, with its customary fountain and bit of greenery, so marked a feature in every Mexican town, and so attractive to visitors from the North. About this square are the usual public buildings, as the governor's palace and the great church, this latter said to be second only in size to the cathedral of Mexico City, and the noblest edifice in all Northern Mexico. It is a beautiful and imposing structure of light-colored stone, with a central dome, and two high towers. Its façade reminded me of that of the cathedral of Oaxaca, in Southern Mexico, (though itself a grander building,) as it is embellished with life-size statues of our Saviour and the twelve Apostles. Its picture is here; and in accordance with my plan, to waste no time on text when the graver can be employed to better advantage, I resign the pen in favor of the latter.

I would advise the visitor to follow my example. at least in one particular, and climb to the towers, where there are many bells, — one in particular which was shattered by a cannon-ball from the invading army of Maximilian, in 1866, — and take a survey over the attractive valley from that elevated point. Its numerous bells are mellow-toned, and its quaint old clock is illuminated at night, so that the many loungers in the Plaza, who idle away the hours of evening to the strains of Mexican music and the tinkling waters of the fountain, retire promptly and quietly as the hour of ten is struck.

At the close of the last century a massive aqueduct was built, about three miles and a half in length, running a long distance on arches of masonry. It terminates near the alameda, a great grove of cottonwood trees, which shelter grand promenades and drives, though given over to pigs, goats, and burros, and to certain classes of Mexicans. The chapel of Guadalupe, at the head of the alameda, where may be seen a statue of the great Jesuit, Loyola, is fresh and attractive; beyond which a road runs into the suburbs, to a quarter of stately houses and gardens. In the upper part of the city is another alameda, or public walk, which is more of a resort, where a triple row of trees shades numerous benches of stone and masonry.

Here, at a point mainly above the roofs of the city, is a vacant lot, the only eligible site for an American hotel, and which, I was told, the owner offered to give outright to any one who would erect there a structure costing not less than $60,000. There is certainly a need for a good public house in Chihuahua, as those at present existing are not altogether satisfactory. The obstacles in the way, however, are both numerous and serious; the principal being the lack of fuel and produce, and the great cost of everything necessary to the running of a successful public house. Of restaurants and second-rate hotels Chihuahua now has a sufficient number; and whether the increasing travel will warrant the erection of a costly house, which must depend almost entirely upon the "States" for its provisions, and entirely upon them for patronage, would seem at present problematical. All the requisites for success as a winter resort — bright sun, pure and bracing air, picturesque (though circumscribed) surroundings, and a region new to the average tourist — are here. The prices of necessary staples are about as follows: flour, $8 per hundred pounds; wood, $26 per cord; coal, $25 per ton; chickens, forty cents each; eggs, fifty cents per dozen; American cheese, fifty cents per pound; lard, forty cents; butter, sixty cents: sugar (American), thirty-seven cents; ham (American), fifty cents; fresh beef, six to twelve cents; mutton, eight to fifteen cents; native vegetables at low prices. Building material is excessively dear, and labor, skilled and common, very low. I might add, that Chihuahua possesses one monopoly, — a diminutive dog, so small that it leaves nothing to be desired, and so intelligent that it never barks and rarely bites. Its origin is enveloped in mystery, but its fate, so far as Mexico is concerned, is likely to be extermination, as all the specimens procurable are bought at fabulous prices and sent North. Attempts to propagate the species, outside of Chihuahua, have failed in producing pups that did not outstrip their progenitors in size, and thus become worthless.

An immense trade was carried on here with the United States, as the distance is so great to the Mexican producing and manufacturing centres that nearly all supplies are obtained from the

North. The great trade, which was formerly conducted by means of caravans, with Santa Fé, Kansas City, and St. Louis, now, of course, reverts to the railroad. No longer isolated, but with direct and rapid communication with the outside world, Chihuahua does not now demand its goods in great bulk; its wants are supplied, and of the great number of traders and speculators who flocked there at the opening of the railroad, the majority have been badly bitten and bitterly disappointed. The Mexican can only move at a certain pace; in an age of steam he lives with all the simplicity of his ancestors, when the patriarchal system was in vogue. You cannot hurry him, except you charge upon him with an engine, and then he retorts by putting conductor and engineer in jail and confiscating your property. He does not take kindly to innovations; he prefers bare floors and unadorned walls to English carpets and American furniture. In truth, he prefers to be let alone; he will not allow his household gods to be ruthlessly torn down by these iconoclastic "Gringos"; and if the American flood increase to a deluge, and even completely surround him and his family, he will continue to live as his fathers did, calm and unmoved amid the seething waters of change.

The Mexican of the Border has an unpleasant custom, when trouble arises, of clapping his loving brother from the "Sister Republic" into the calaboose. The farther south one goes, the less the danger, as a rule, as this undoubtedly arises from the frequent vagaries of the American stranger, the outgrowth of individual enterprise. This is not always prompted by malice or jealousy; indeed, he is remarkably unsuspicious; but it is a custom of the country, *costumbre del pais*, sanctioned by long usage. He makes no distinction between Yankee and Aztec; his rule is, when in doubt, the *calaboza*. It may happen that the unhappy victim languishes for months, perhaps for years, in durance vile, but his turn for trial comes round in due course. Retributive justice is swift in Mexico, but the processes of the law are slow. It may be that the Mexican official is sometimes influenced by the haughty bearing and arrogance of the American, who, conscious of superior antecedents, makes his presence a trifle obnoxious.

GREAT CHURCH OF CHIHUAHUA.

"Throughout America," says a traveller, Froebel, "the term 'American' is almost exclusively applied to the people of the United States; — a practice by which the 'manifest destiny' of that compound of the most active elements of the present generation of mankind is thoughtlessly recognized, even by those who are most immediately threatened by it; for in all Spanish countries *los Americanos* means the people of the great Northern republic." Let this definition, by a foreign writer, satisfactorily explain the use of the word, and its origin, and let it not be charged upon us that we have arrogated to ourselves this distinctive term of superiority. Much to our discredit, it is indiscriminately applied to all individuals from over the Border, whether the land of their nativity be the New or the Old World. At least nine out of ten of these murders — let it be distinctly understood — are by foreign-born citizens of the United States, coming mainly from that country notorious for its turbulent population. While I was in Chihuahua, I remember, two murders occurred of a particularly brutal character, and all the native citizens of respectability held up their hands in horror at the barbarous deeds of *los Americanos*. Yet they proceeded from the usual source. "They were 'Americans,'" said one of my countrymen indignantly, commenting on the affair; "every foreigner is an American here; but one was born in England, and the other came straight over from Ireland!"

Very fortunate it is for Northern speculators and the railway men that the Governor of the State, Don Luis Terrasus, and the Mayor of the city, Don Juan Zubiran, are gentlemen of broad and enlightened views, courteous and refined, who enter heartily into the progressive movement, and strive with all their power to allay, rather than promote, sectional animosities. The two newspapers here printed in the interests of Americans, "The Enterprise" and "The Chihuahua Mail," though a little too sanguine in their predictions of immediate prosperity for the northern investor, are yet excellent pacificators; and as the Mail prints half of its broad columns in Spanish, and does not hesitate to bestow a healthy criticism upon the State and city government now and then, they are very important factors

in the Americanizing of Northern Mexico. And by the term "Americanizing" I would imply that great civilizing force that is permeating the Southern republic, opening its mines, spanning its deserts with bands of steel and electric wires, thus materially aiding the central government in the restoration and permanent preservation of law and order in its remote and hitherto inaccessible provinces.

"The most hopeful sign of the better fortune dawning for the two republics," says a progressive newspaper, the El Paso Times, "is to be found in the rapid manner in which the old feelings of ill-will, which were wont to prevail between the people of the United States and the people of Mexico, are disappearing. In the near future will doubtless be realized the statesman-like vision of Grant: a free trade for the North American continent, and a moderate tariff for foreign nations."

The railroad brought to Chihuahua many industries to which she was a perfect stranger, one of the first being a great lumber company and factory, the result of the joint efforts of Ex-Governor Anthony of Kansas, a former Superintendent of the Central Railroad, and Mayor Zubiran. A flouring-mill was established by Mr. Marshall of California, and a bullion refinery by a learned German, to utilize the wastage made in silver by the old processes. Three hotels were soon opened by Americans, which were a great improvement over the Mexican meson, with its stables in the courts and total disregard of a traveller's wants. A livery stable and transfer company was the next American enterprise, and the street railroad the crowning one, while rapid communication with the North and the safe forwarding of letters and packages is attended to by the Wells Fargo Express. A telephone company and an ice factory, and everything that Chihuahua needs, or is supposed to require, have been provided, except a well-appointed drug store and a really magnificent caravansary.[1] News and book companies operate here at great profit, while hand in hand with other American institutions the

[1] The two newspapers mentioned above, and nearly all the enterprises which were at first initiated, have succumbed to the inevitable fate of pioneers; they are now no more (1887).

Protestant Mission has secured a foothold here. The pioneer in this work, representing the combined Presbyterian and Congregational Boards, is the Rev. J. D. Eaton, a gentleman who has won the love and regard of the entire community, while engaged in the labor of bringing together such members of it as, deprived of the Christian influences of home, are yet desirous of retaining its memories and religious associations sweet and unimpaired. I think it is his aim — as it certainly should be — rather to supply the spiritual needs of our own people who have wandered beyond the reach of the home circle, than to attempt to proselyte from among the Mexicans.

A building which strangers to the city never fail to visit is the mint, *casa de moneda*, where not only do they inspect the works and operations of this establishment, but are shown a room in which Hidalgo, the liberator-priest of Mexico, was confined, the night previous to his execution in the adjacent plaza. We need not to be reminded that Chihuahua is a silver-producing State, for it has long borne that reputation. It contains eighteen or twenty well-defined mineral districts, in which are valuable mines in working, with others abandoned through Indian incursions. Twelve, at least, of these districts contain mines that have a marketable value, and are profitable to their owners. The number of large reduction works is twenty, and constantly increasing. The systems employed are the smelting and the patio (see Chapter XXII.), though the greater portion of the metal is extracted by the former, and by an improved process introduced by American capitalists.

Not only the mint is a constant witness to the great yield of the mines, but even the cathedral. Its walls, to use a figurative expression, are laid in silver, and from "turret to foundation stone" this vast structure was the product of a single mine. How? Let us see. Numerous writers have adverted to this fact, but I will quote from one the least prejudiced, because disinterested, the German traveller, Froebel: "Twelve or fifteen miles distant from the capital are the mines of Santa Eulalia, from which it derived its ancient wealth and splendor, and all the mountains of which, within a space of six square miles,

contain silver. Over two hundred mines have been worked here, and more than fifty of these have shafts not less than six hundred feet in depth. Several of them are so extensive, that it takes a day to pass through a single one. When these mines were at the height of their prosperity, a tax of a real was levied upon each *marco* — half-pound — of silver produced, for the building of the cathedral of Chihuahua and the church of Santa Eulalia. The first cost $600,000 (one writer says $800,000); the last, $150,000; and a surplus of $150,000 remained to the building fund when both were completed. Between 1703 and 1833 silver was taken from these mines amounting to 43,000,000 *marcos*, or about $344,000,000." This author then adds: "For these mines and the town of Chihuahua, there is every prospect of a renewed and lasting period of wealth, since, sooner or later, there can be no doubt that capital and enterprise will be found to develop the natural resources of this locality."

This statement, made over thirty years ago, was in a measure prophetic, as a company of Eastern capitalists has commenced work at Santa Eulalia, with all the machinery necessary for pumping out the abandoned mines, and exposing the veins that produced so many successive bonanzas. One of their tunnels alone is seven hundred and fifty feet in length, eight feet high, by seven wide, and is intended to tap several mines.

In the banking-house of McManus & Co. I was shown a mass of silver as large as a coco-nut, containing that peculiar formation called *clavos* (or nails), like wires or nails of silver melted together. It had just been received from the Batopilas mines, now owned by a company, the "Batopilas Consolidated," represented by Ex-Governor Shepherd. At the same time the *conducta* came in from Batopilas with $60,000 in pure silver, as the returns for the month's work. In the list of mines of Northern Mexico, the Batopilas occupy the first place, as they have yielded many bonanzas and have produced some of the largest and most beautiful masses of native silver that have ever been exhibited to the world. They lie on the western declivity of the Sierra Madre, southwest of the city of Chihuahua, and distant five days by coach or muleback. The distance from

Parral is about two hundred miles, nearly due west, and the district is situated in a very deep ravine, where the climate is warm, but healthy.

The metallic lodes, says Mr. Ward, visible by their elevated crests, are almost innumerable. The principal mines, most of which have been in bonanza, are the Carmen, San Antonio, Nevada, Pastrana, Arbitrios, Dolores, Candelaria, and Buen Suceso. The Carmen is the mine that produced the enormous wealth of the Marquis of Bustamente, and from which a mass of solid silver was extracted which weighed 425 pounds. The ores of Pastrana were so rich that the lode was worked by bars, with a point at one end and a chisel at the other, for cutting out the silver. Buen Suceso was discovered by an Indian, who swam across the river after a great flood. On arriving at the other side he found the crest of an immense lode laid bare by the force of the waters. The greater part of this crest was pure and massive silver, and sparkling in the sun. The Indian extracted great wealth from his mine, but on arriving at the depth of three varas, the abundance of water obliged him to abandon it. In the Batopilas district the silver is generally found pure, and unaccompanied by any extraneous substances. The reduction of the ores is consequently easy and simple. When the silver is not found in solid masses which require to be cut with a chisel, it is generally finely sprinkled through the lode, and often seems to nail together the particles of stone through which it is disseminated. The lodes are of considerable width, but the masses of silver are only met with at intervals.

Not so far to the south is the Cusihuiriachi District, in the centre of which region is a metallic deposit in the general shape of a tree, from the trunk of which radiate many veins in every direction. Upon the hill, which is the highest of this branch of the Sierra Madre, are the mines of silver, lead, and zinc of San Martina, San Antonio, and San Bartolo, which have been recently purchased by an American company, for a large sum, and are full of rich promise for the future.

One evening, as I sat on the balcony of the American House, overlooking the beautiful plaza, a shouting and cracking of whips

arrested my attention, and there came into view a caravan of mules, which lengthened out until nine fourteen-mule teams had passed down the broad street and disappeared in the dusk. They were the teams used in transporting machinery and mining supplies to those far away camps in the mountains. At another time a great wagon drawn by long yokes of oxen came up from the south, from Mexico City, quite a thousand miles away, with its spare wheel lashed under the wagon body, and its drivers and cattle looking worn and weary. Not many more trips are in store for them, for the railroad covers much of their long, wearisome route, and they will soon be as useless as their fifth wheel, except in cases of emergency, unless they seek new fields in Central America.

These carts were laden principally with the beautiful pottery of Guadalajara, a great State of Central Mexico, famous for these products of the ceramic art and for the vast cathedral of its capital city. To complete the series of pictures of the principal churches and cathedrals of Mexico, I insert an engraving of this great and splendid religious edifice.

On the arrival of the first train from the North, which was but eight months previous to my first visit, the population went out to greet its distinguished visitors, and the city, even to the high towers of the cathedral, was illuminated. The next day was that of the Independence of Mexico, the 16th of September, and to the booming of cannon and ringing of bells was added, for the first time in Chihuahua's existence, the whistle of the locomotive. All Chihuahua, wrote the correspondent of a Texas paper at that time, were around the railroad track as the train came in. "All who were able to ride, walk, or crawl were there. And of the assembled thousands, fully one half belonged to the untutored, mystery-worshipping class, who had never seen even the picture of a locomotive or train of cars. They had heard of the wonders of the cars from stray travellers of their caste, who by driving freight wagons to El Paso had seen them, and were ready to behold an engine or a devil. But when they saw the wonderful thing itself, coming like a black mastodon, roaring, hissing, rumbling, tearing along through the

CATHEDRAL OF GUADALAJARA.

darkness, with its dazzling headlight, we can excuse them from making the sign of the cross, and bending to the ground, while they murmured, — as many did, — '*Ave Maria Santissima, estan llegando el diablo; salvarnos!*'"

It halted not, this black monster of invasion, but proceeded on its way southward, and when I was there, in June, 1883, was four hundred miles south of the Border. In company with a delightful acquaintance, Mr. Motter, a well-known lawyer of St. Joseph, Missouri, I left Chihuahua one night, at eleven o'clock, for the end of track. The road had not then been "accepted" beyond the city by the government engineer, but a caboose was attached to every construction train in which passengers who chose to make the venture could stow themselves at their own risk. The opportunity for visiting hitherto inaccessible country and distant relations, without cost, was too tempting for the Mexican to resist, and the caboose was so crowded that a seat on the floor, even, was at a premium. The Mexicans had an abundance of provender, and they ate, and smoked, and spat, until the air was blue, themselves gorged almost to bursting, and the floor itself in the condition of their own dirty hovels. The men were voluble, the women loquacious, and the babies yelled all the night long, so that we were not at all sorry when daylight came.

About two miles from the city are the reduction works of the Santa Eulalia Mining Company, which are connected with their mines by a short narrow-gauge track, and are doing well. Adjoining this property is a vast hacienda, comprising some 62,000 acres, situated in a very fertile valley, and owned by Señor Enrique Müller. I drove over this great property at a later date with Señor Müller, who is a German by birth, and a gentleman of culture, broad views, and great attainments. He was building an adobe residence, with cut stone portals and pillars, 200 feet long by 125 feet wide, surrounding a court, and with graceful towers at every angle. All the work was done by his own laborers, even to the sculptured columns and arched portals. He had raised, in the year past, 70,000 bushels of wheat, and 20,000 of corn, while his herds covered the pastures for miles. The adobe quarters for his laborers were several hundred feet

in length, each family having two snug little rooms, and constituted one wall of his nursery, in which he had already set out over 3,000 fruit trees. They do things on a vast scale in Mexico, when they can get the land; next below Señor Müller are several haciendas, one of 60,000, and another of 125,000 acres.

With us, on the car, was a part owner of the Santa Eulalia mines, and of the celebrated iron mountain, the Cerro Mercado, of Durango, who was going to visit the latter, and would have to "stage it" four hundred miles beyond the end of track.

We ran for twenty-seven miles through a single grant, belonging to Señor Horcasitas, and at a curve around the Santa Eulalia mountains entered another hacienda of 45,000 acres, owned by the bankers, McManus & Son, of Chihuahua. At the Rio San Pedro a magnificent bridge of hewn stone, soft in color and easily worked, was being constructed across the broad and exposed river-bed. Over the river we entered another ranch, Las Delicias, of 150,000 acres, with 10,000 under cultivation, and which is said to rent for $15,000 per annum. The moderately fertile lands of the celebrated Conchos River lie beyond, and we rode for twenty-seven miles within sight of the stream, and along an immense irrigating canal, which renders this otherwise waste land productive in wheat, corn, barley, and even in cane, cotton, and tobacco.

At the fork of the Conchos and Rio Florida lies the adobe town of Santa Rosalia, with about 9,000 inhabitants, unattractive save for its plazuela, with its flowers, and rivulets, and singing birds. Above the town are the ruins of an adobe fort, taken by the gallant Doniphan on his march through the country to join General Taylor, at the beginning of the Mexican war. Four miles from the town are the hot springs of Santa Rosalia, famous throughout Northern Mexico for their curative properties; and these we visited, leaving the train with its expectorating passengers and shrieking infants, and taking to a vehicle denominated by courtesy a "hack." The ride, though rough, was delightful, first through the mud-colored hamlet, then down a shady lane, across an *acequia*. Fording the Rio Conchos, we passed over a mile of fertile farm land, level as a floor, and every

inch under cultivation. The Indian farmers were peacefully ploughing, with wooden ploughs, driving their teams four abreast, and leaving behind them furrows such as might be made by dragging a sharpened stick of timber over the ground. Yet their acres were broad and free from weeds, and smiling, beneath the glorious sun of Northern Mexico, in cotton, tobacco, corn, and cane, intermixed with desirable fruits, such as apples, quinces, and peaches. They lived, to be sure, in mud hovels, mere boxes of adobe brick, hardly ten feet high by twenty square; but these huts are cool in summer and warm in winter; and what more does man want, in this climate of perpetual sunshine? The springs themselves lie under a cream-colored bluff, about fifty feet in height, from which they come pouring out, to the number of six, some smelling of sulphur, others of sulphuretted hydrogen, and all of them hot. Each one is guided into an adobe pen, or mud hut, about ten feet square, and in the mud floor of which a hole is sunk about six feet by three. An attendant living in another mud hovel furnishes you with a towel and a sheet, and then you take your choice of an arsenic, a sulphur, an iron, or a magnesia spring, or of another in which all these elements are compounded, with a resultant stench that is completely overpowering, even in this land of evil odors.

A romantic history pertains to these springs; but their future is of more importance than their past, just now, for the railroad company, with that liberal policy and foresight which have characterized the managers of the Atchison system, purposes to make of Santa Eulalia a watering-place second to none south of Las Vegas in New Mexico. There is a good deal in these springs besides water, and there is little doubt that a hotel will take the place of the present ill-conditioned quarters, within the space of a few years.

The valley of the Rio Florida is reputed the richest in Chihuahua, yet there were but three haciendas in sight in a run of forty miles. They, indeed, were almost boundless in extent, as measured by the eye, and their *acequia*, or irrigating canal, was nearly fifty miles in length; many a league of waste land, covered originally with mesquit, was being reclaimed through

its influence, and corn and wheat were springing up wherever its trickling rills had penetrated. This section was the crossing place of the Apache trail from the Sierra Madre to the eastern plains, and throughout these fields we saw scattered circular adobe watch-houses, to which the laborers would retreat at the first note of alarm. The Apaches have not been seen here for a number of years, and will never probably come this way again; yet every hacienda has suffered from them, and one field was pointed out to us where twenty laborers had been killed in a single fight. Towards sunset, in the centre of the valley, we passed one hacienda where the Indian peons were all sitting on the flat roofs of their mud dwellings, a picture of which I was reminded later, when visiting the Pueblos of New Mexico. The peon wears only cotton drawers and a hat, perhaps sandals, and at night a shirt and sarape; in fact, the Indian of the Border differs but slightly in dress from his red brother of Yucatan and Southern Mexico.

XXX.

SONORA AND THE APACHE COUNTRY.

BY the *Proyecta de Guerra* of 1837, the government of Chihuahua, worn out by the repeated atrocities committed on its defenceless ranchos and pueblos, offered a bounty for every Indian scalp: $100 for that of every warrior, and $50 for that of a squaw. This *proyecta* was soon repealed, but not before its beneficial workings were made manifest in the lessening of the number of *los barbaros* about the region of the capital city. It was almost from necessity that the project was, in effect, again lately put in operation in the raids against those Indians, though bounty for the scalp of a "buck" was advanced to $250, while the soldiers were cautioned to extend the shield of protection over the less guilty and defenceless women and children.

Having had dealings with savage Indians for over three centuries, the Mexican government has finally evolved a policy that should commend itself to our own. The squaws are, indeed, nearly as irreclaimable as the men, but they endure confinement with stoical indifference, and some of them even take kindly to service in Mexican families. The children are assigned to good masters, and though scattered throughout the State, so as entirely to remove them from tribal influences, they are treated with great humanity. But even after years of captivity, many of these Apache children, although brought up as privileged members of the family, will escape and flee to the mountains, such is their inherent barbarism.

Confined in the jail at Chihuahua, at the time of my visit, were about twenty Apache prisoners, women and children. Nearly all the women were busy with the needle, and one of them, an aged squaw, with head white with the frosts of many winters,

was engaged in an insectivorous hunt in the hair of her neighbor, that required not only good eyesight but deft fingers. They seemed to enjoy the cool rooms of their prison, which opened into a clean patio, shaded by fig-trees; and one of them, who had recently given birth to an infant, seemed an object of solicitude to her companions. This babe, then about three weeks old, was very light in color, had a thick head of jet black hair, and, as it lay sleeping on the stone floor, looked the picture of health and innocence.

My acquaintance with the Apaches began in the first week in June, at which time there were some two thousand Mexican troops in the Sierras and on their skirts, with headquarters at Casas Grandes and Corallitos, in the northwestern part of the State. They were honestly endeavoring to co-operate with General Crook, who had then been absent, and unheard from, in the mountains of the Apache region, for quite a month. It had been reported that intense feeling existed in Mexico against the United States government, on account of the passage of the Border by our troops; but this I found not to be the case. There was a feeling, it is true, — but also shared in by all sensible residents of the Southwest, — that the United States troops were but carrying out a *false and mistaken policy;* that they were in Mexico, not for the purpose of meting out justice to murderers who had perpetrated atrocities without a parallel in Indian warfare, but to cajole them into returning to the flesh-pots of the reservation, with all their plunder stolen from Mexican haciendas, their herds of cattle and horses, there to recruit for fresh forays into Mexican territory.

The Mexicans know, through two hundred years and more of bitter experience, that the caustic remark, usually attributed to General Sheridan, that "the only good Indian is a *dead* Indian," is perfectly true as applied to the Apache. Hence it is that the grim humor of the farce enacted by our government was hardly appreciated, in view of the tragedy that they knew was sure to follow!

Coming down from Santa Fé, New Mexico, on the 16th of June, on my way to the Gulf of California, I learned, at the little

station of Willcox, on the "Southern Pacific," that General Crook's command had recrossed the frontier, and that he himself was in the hotel of that very place. Hearing this, and that, further, the troops with the Indian prisoners would be in early next day, I at once applied to the conductor for a stop-over check; for I had a through ticket for Sonora, and local travel on the Southern Pacific is ten cents a mile. But he had then already given the signal for starting the train, and I had nothing to do but clamber on board again. One hope remained; it was an up-grade for the next twenty-five miles, and an extra engine was assisting from Willcox, to which it would return from Dragoon Summit, where I secured the coveted stop-over. The engineer — to his credit let me say it — refused me a ride on the engine, saying it was against orders; but after he had got the old machine spinning down the steep incline, he found I was a passenger, and could not then well put me off.

APACHE SQUAWS.

Willcox, which lies as near the point of departure for the Apache country as any station on the Southern Pacific, consists of two straggling lines of shanties and frame houses, and presents a bold front, with a saloon in every other building. It is an outfitting station, and has several well-stocked stores and large corrals. Though it was Saturday, and Crook's forces were momentarily expected, the town was very quiet, and but few of the inhabitants were intoxicated; save one poor devil, who lay dead drunk on the platform scales all day. He must have been

weighed during the night, and found wanting — at the police station; for his place was vacant in the morning.

General Crook was not visible till late in the evening, as he was taking a much-needed rest; but he then gave an interview to the two sons and former law partner of the murdered Judge McComas, who, with his wife, was killed at a short distance only from Lordsburg, a station on the railroad about seventy miles from Willcox. The General gave the anxious young men much encouragement to hope that their little brother, Charley, who had been carried away by the Indians, was yet alive. He told them he was quite certain the little captive would be brought in within seven days, as he had detailed Indians acquainted with his whereabouts to search for him. Notwithstanding this assurance, subsequent events have proved our Indian fighter to be in error, as it would seem that Charley was not a long time even in captivity, but was brutally murdered not long after his capture.

The wily Indians well knew what an influence it would have in making subsequent terms for peace, if it should be thought that he was then alive and well, and we have many reasons for believing that the "Gray Fox," as they denominate General Crook, was outwitted by the untutored savage in several instances, and that the latter was chuckling, for more reasons than one, when, in reply to a question at an interview in the Sierras, the "Gray Fox" made a mistake in the word for his Apache appellation.

On the morning of the 17th of June, General Crook and his staff started in an ambulance for a military post in the interior. Early the same day a party of us bestrode some lively horses and rode out to Croton Springs, where we found Crook's command encamped, and already picketing their horses, while the Indians were scattered over the fields wherever their fancy seemed to have taken them. It was difficult to distinguish captives from captors, for the famed scouts were not in many instances better armed than their "prisoners," except that the last were mainly children and squaws, and the remainder old and decrepit men.

These Apache scouts were a muscular, sinewy body of men, and their countenances were of a cheerful cast, save for an aspect of ferocity bestowed by an overhanging shock of jet-black hair. This was bound in place by a strip of scarlet cloth; a loose-hanging shirt fell over their scanty drawers, or deer-skin leggings, and their feet were encased in fine and close-fitting moccasons with raw-hide points, which projected beyond and turned up in front of the toes. Some were in uniform and wore blue trousers, kept in place by a broad leather belt, which contained as many rounds of cartridges as could be crammed into it, generally forty. All were armed with the regulation Springfield breech-loading rifle, and every one bore a brass tag, with a number on it corresponding with another attached to a minute description of the bearer at the San Carlos reservation.

Our first respects were paid to Captain Crawford, commander of the scouts, and Lieutenant Gatewood and the bronzed and war-worn troopers who comprised the company from the Sixth Cavalry. Most of them were asleep, and but one man could be seen on guard in the whole encampment, though the Indians, scouts and all, outnumbered the whites ten to one, and were not a long way distant from their retreats in the Mexican mountains. The squaws and children, temporarily deprived of the protection of the gallant "bucks," had already raised shelters over themselves and their belongings, in the shape of huts of brush, or cloth tents, and there they sat, as hideous groups of redskins as ever drew the breath of life. There they sat, or wandered around the camp, or went to the spring for water, or staid by their fires and cooked the entrails and garbage of the slaughtered cows, while choice cuts of beef fairly covered the tops of all the bushes. Revelling, even rioting, in abundance, these Indians were far better fed than the brave and patient soldiers who had penetrated to their far-off stronghold, and brought them out to be petted and fattened at the expense of good Uncle Sam. "Beefsteak and chops for the —— redskins," said one of the soldiers, "and sow-belly and hard-tack for us." This is the usual complaint, I know, but in this case it was justified by the fact.

There were in all about three hundred and eighty captives, but forty of whom were, or ever had been, warriors; among them were several chiefs who had been famous, but who, from age or incapacity, no longer had influence with the tribe. One of these, named *Loco*, or Old Crazy, was once a famous leader, but is now a pitiful old man, with shrunken and palsied limbs, and so poor that he even sold his neck-ornaments, his tweezers for picking out the superfluous hairs on his face, and his brass earrings, for a little silver. But he was an exception to the others, who were fat, saucy, and rich beyond the dreams of Indian avarice. The others figuring as chiefs were Chato, Bonito, Geronimo, Nachez, and Nana, who were engaged all day in playing a peculiar game with long poles and hoops. The whole band was well supplied with money: gold, silver, greenbacks, and fractional currency of Chihuahua, amounting, it was thought, to a sum not less than $5,000, as when captured they had over one hundred ponies laden with plunder, not only cloths, saddles,

AN APACHE AND HIS WIGWAMS.

and money, but even gold and silver watches. The ornaments of bucks and squaws were made of silver dollars beaten into stars, and some wore necklaces of double-eagles, American gold. They were so well "fixed" that I could not purchase any of their effects, such as I have hitherto found the Southern Indians so ready to part with, except one small *jicarilla*, or water-gourd, covered with bear-skin.

Nearly all were engaged in their favorite pastime of *monte*, or Mexican cards, and the circles formed for this purpose were many, and the crowds about them dense and numerous. In the afternoon two great loads of goods came out from Willcox; and these savages, with arms yet in their hands, and thrifty in murdered men's money, crowded around the wagons and quickly emptied them, bartering their spoil, some of it yet red with the blood-stains of their victims, for the luxuries of civilization.

I witnessed this, not without indignation, and also another sight which was calculated to hasten the circulation of Yankee blood a little; no less than the purchase of the veritable watch taken from the dead body of the murdered Judge McComas, and for which, that very day, his former law partner paid fifty dollars to recover for the family! Better, a thousand times, thought I, the Indian policy of the Mexican, than such a vacillating one as ours, which sacrifices the lives of valuable soldiers and hardy frontiersmen to the support of a horde of villains, whose crimes, in a civilized community, would send them to eternity with the rope of outraged justice around their necks!

As I have said, feasting and boasting seemed the sole occupation of that "captured" horde, and, as night fell, an Indian drum sounded a call for a savage dance of victory, — a victory of Indian cunning and diplomacy. All was joy and happiness in Arizona at that time, June, 1883, for it was thought that the territory was finally freed from predatory bands, as General Crook, in his despatches, gave the most emphatic assurance that no Indians were left likely to cause disturbance, or that would not soon be on the reservation; yet within less than three months reports of murders and wholesale cattle-stealings by the Apaches came thick and fast from Chihuahua and Sonora.

The end, if I may judge from the tone of the Western press, is not yet, nor likely to be, until the last Apache "buck" is sent to happier hunting-grounds than the Sierra Madres. We should not forget, in our spasms of sympathy with the redskin, that the white man also has claims upon our humanity.

The Apaches, it is well known, are divided into several different tribes, so widely separated that they have different dialects. In 1876 their number was estimated at 10,000, but at present it is not much over 6,000. They are probably of Mexican stock, descendants of those fierce Chichimecs, who have remained nomads and barbarians from time immemorial. Nearly all the tribes have been brought into the United States reservations except the Chiricahuas, whose haunts were the almost inaccessible fastnesses of the Sierra Madre Mountains in Northwestern Chihuahua and Northeastern Sonora, where rocky gorges, deep cañons, and pine-crested heights gave them ample security. With their homes in this vast wilderness, whose solitudes were never penetrated by whites or Mexicans until in 1883, they have ravaged the territory on both sides the border line ever since it was first inhabited by a Christian population.

The records of the Spanish missionaries, who were the first to establish settlements in Northern Mexico, one of which was the Presidio of Fronteras, in 1690, show that they were constantly carrying on an unequal struggle with their savage neighbors, whom they could neither subjugate nor civilize. From a collection of notes written by one of these missionaries in 1762, we learn that there were then, in the province of Sonora alone, inclusive of the five presidios, twenty-two inhabited and *forty-eight* depopulated Spanish settlements and mining towns, and but two occupied ranchos, while there were *one hundred and twenty-six* devastated.

This condition of affairs has not been improved by the lapse of time, nor have any of the settlements thus destroyed by Indians or abandoned through fear of them, ever been rebuilt. To one unacquainted with the country which borders the Sierra Madres it would be difficult to picture its desolation and wretchedness. Though it has a fine climate, fertile valleys, and

perhaps rich mineral deposits, the traveller finds only deserted haciendas and settlements, while the few inhabitants are crowded into small villages, tilling the soil only in their immediate neighborhood, living in constant dread of the savages, and pos-

A WARRIOR AND HIS WEAPONS.

sessing but a small number of cattle and horses, owing to the frequent raids. Thickly scattered along every trail are seen small mounds of stone surmounted by rude crosses, showing where some poor wayfarer has been murdered by the Indians. "Infelice Sonora" was the name aptly applied by the old writers

to this devastated territory. Of the Chihuahua territory on the eastern side of the mountain range a Mexican writer recently said: "At present every hacienda must be converted into a castle of the Middle Ages, every shepherd into a soldier; proprietors of estates enjoy no security in their possessions, and the common people gather themselves into villages to escape from the exposed country in which they are certain to become the victims of the bloodthirsty savages from the wilderness."

The last extensive raid of which we have information was committed in 1882, when a band of seventy-five warriors roamed over entire Northern Sonora, spreading everywhere death and desolation, even to the very suburbs of the large cities, as Ures, the former capital. Though it is difficult to get any data as to the extent of these outrages, it is safe to say that at least one hundred people were murdered during this raid, without the loss of a single Indian. They then departed for Chihuahua, where their work of blood was continued, in the neighborhood of Carmen and Casas Grandes, and they returned to their stronghold with six captives and three hundred head of stock.

Nor have they confined their operations to Mexico, for the annals of New Mexico and Arizona tell similar tales of woe; even so late as 1882 they killed seventeen people in these territories. The Mexicans have again and again sent expeditions against them, which generally returned unsuccessful. Their repeated failures are not difficult of explanation, though it is hard for one unacquainted with Indian warfare to understand why a small band like this, which seems never to have contained more than three hundred warriors, has not been subjugated or exterminated. One of the reasons is, that the Indians live in an unexplored wilderness, without fixed habitations, camping in small bodies, here to-day and off to-morrow, and ever ready to scatter at the signal of danger. Hence there is no fixed objective to which troops can march. Following on the trail of the last raiding party, they reach, perchance, the outskirts of the Indian stronghold; without guides to head the advance, they find themselves in a perfect labyrinth of trails, leading in all directions, with no signs of the foe, save here and there a deserted rancheria. To

move on seems useless and hazardous, and as their rations (all of which they are obliged to carry) are giving out, there is nothing to do but sound the retreat. Then it is that the Indians again assemble, and, being perfect masters of the country, make use of every gorge and cañon from which to pour a deadly fire upon the weary and discouraged soldiers.

The Department of Arizona had been for several years in charge of General Crook, who had gained a reputation for bravery and skill as an Indian fighter second to that of no other officer of our army. When the last outbreak occurred he planned a campaign that should penetrate to the Indian stronghold, hoping thereby to strike terror into the hearts of the enemy and entirely crush them out. The difficulties attending Indian fighting in this department are not alone those resulting from the unfavorable character of the territory, but are augmented by the treaty stipulations between Mexico and the United States, by which alien troops are not permitted to cross the Border. Cognizant of these restrictions, the Apaches raid first one country and then the other, retreating over the line, where they for a while defy the pursuing soldiers, and enjoy their plunder unmolested.

After visiting the officers in command of the Mexican troops in Sonora and Chihuahua, and securing their promise of cooperation, if possible, and the assurance that treaty violations in this instance would be winked at, in view of the great advantages likely to accrue to Mexico from the bold movement, General Crook commenced his march into that unknown territory. In some respects this hazardous undertaking is without a parallel, and the interest excited and sustained during the forty days of his absence, when rumors of every sort filled the press, was without a precedent in the annals of our Indian campaigns.

A renegade Chiricahua Indian, called Peaches, conducted the troop over a trail which led into the heart of the Sierre Madres, for a distance of two hundred miles, — a country hitherto almost unknown to civilized man. The little band consisted of General Crook, with Captain Bourke, of the Third Cavalry, and Lieutenant Fiebeger, Corps of Engineers, as aids, and Captain A. R. Chaffee's company of the Sixth Cavalry, of forty-six men, and

one hundred and ninety-three Apache scouts, under Captain Crawford, assisted by Lieutenants Gatewood and Mackay. The accompanying map, kindly furnished me by Lieutenant Fiebeger, shows the devious trail and the site of every camp and skirmish.

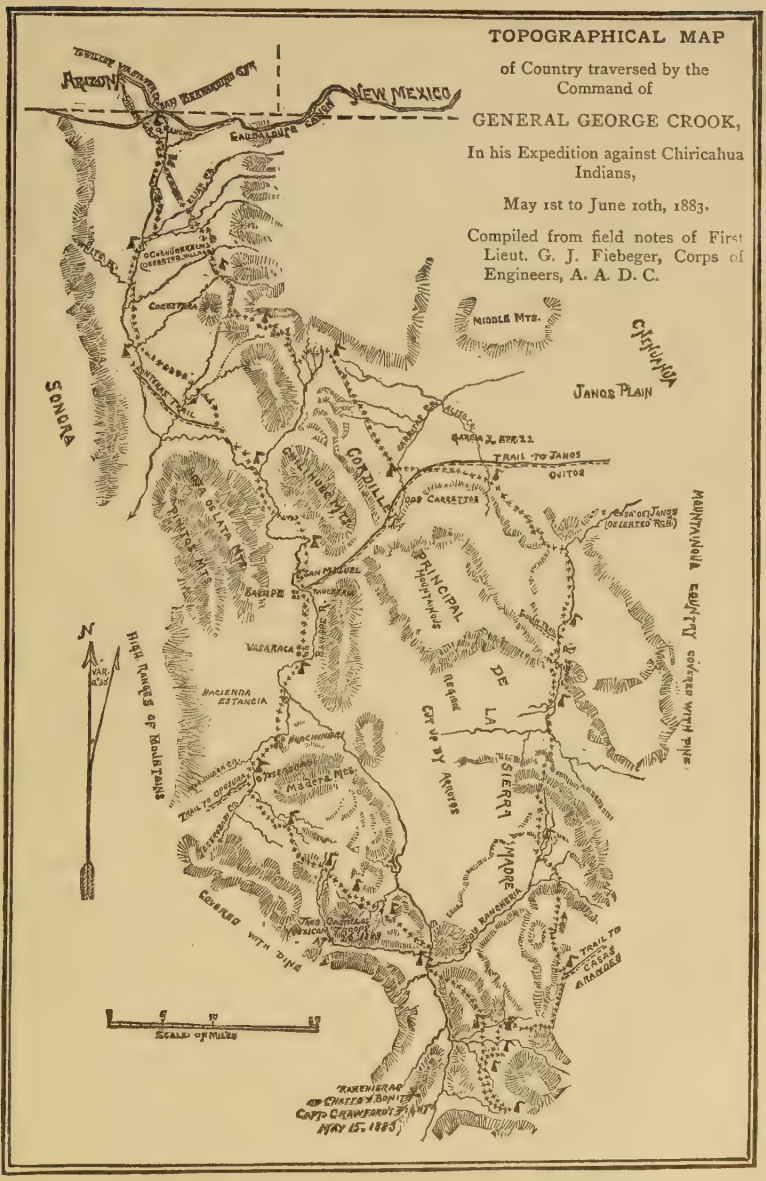
The campaign cannot be more tersely described than in the modest despatch of General Crook, sent in immediately after his return to United States territory.

"SILVER CREEK, ARIZONA, June 12th, 1883.

"Left here May 1, with one hundred and ninety-three Apache scouts under Captain Crawford. Got Lieutenants Wood and Mackay, with Captain Chaffee's company of forty-two men of the Sixth Cavalry, and rations for two months on mules, and followed the hostiles. The Chiricahua country is of indescribable roughness, and a number of mules lost their footing, and, stepping from the trail, fell down precipices and were killed. The stronghold of the Chiricahuas is in the very heart of the Sierra Madre. The position is finely watered, and there is a dense growth of timber and plenty of grass. They had been camped near the head of the Bavispe, occupying prominent, elevated peaks, affording a fine look-out for miles and rendering surprise almost impossible, and their retreats were made secure through the rough adjacent cañons.

"Captain Crawford, with Indian scouts, early on the morning of May 15, surprised the village of Chatto, the chief who led the recent raid into Arizona and New Mexico. The fight lasted all day, and the village was wiped out. The damage done cannot be estimated. A number of dead bodies were found, but the indescribable roughness of the country prevented a count being made. The entire camp, with the stock and everything belonging to it, was captured.

"It was learned from the prisoners taken that the Chiricahuas were unanimous for peace, and that they had already sent two messengers to try to reach San Carlos. On the 17th, they began to surrender. They said their people were much frightened by our sudden appearance in their fastnesses, and had scattered like quail. They asked me to remain until they could gather all their bands together, when they would go back to the reservation. By the terms of the treaty, my operations were limited to the time of the fight. I told the Chiricahuas to gather up their women and children without delay. They answered that they could not get them to respond to the signal, the fugitives fearing they might be sent by our Apache scouts to entrap them. They told us that they had a white boy



who was in the village jumped by our scouts. He had run off with the squaws who escaped, and had not yet been heard from. They

assured me every one of the band should come in if I would remain a short time; but the terms of the treaty embarrassed me greatly, and being in that rough region, with rations rapidly disappearing, there being between three and four hundred Chiricahuas to feed, I was compelled to return.

"We found six Mexican captives, — five women and one child, — taken in Chihuahua early in May. They are now with the command. These women say they were captured near the Mexican Central Railroad, at a place called Carmen. They further state that when the Chiricahuas discovered that the Apache scouts were in the country they became greatly alarmed, and abandoned on the trail the three hundred head of cattle they were driving away from points in Western Chihuahua. The cattle were afterward picked up and driven off by a body of Mexicans.

"We marched back as rapidly as the condition of the stock and the strength of the women and children would permit. We found the country depopulated for a distance of one hundred miles from the Apache stronghold. The Chiricahuas insist that they have always lived in the Sierra Madre, and that even when the main body went on the reservation some remained behind in the mountains. Of those who now go out, there are a number who state that they have never been on the reservation. I have strong hopes of being able to clean the mountains of the last of these.

"There are now with us Loco and Nana, who were so often reported killed, and the families of other prominent chiefs. I saw no Mexican troops, and after leaving the settlements in Northeast Sonora did not see a Mexican other than the captives rescued.

"GEORGE CROOK,
Brigadier-General Commanding."

The enthusiasm of the Border country knew no bounds, as the travel-worn heroes emerged from the unknown region, and General Crook was hailed as the savior of the Southwest. A banquet was given him in Tucson, and the long-repressed feelings of the inhabitants found vent in adulatory addresses. Before the enthusiasm had well cooled, ugly rumors began to creep out; which it may seem ungenerous in me even to mention. His enemies claimed that he had not only committed a foolhardy thing, in going into the stronghold of the Apaches with a force of Indian scouts in full sympathy with them, outnumbering the

soldiers five to one, but that he was at the last outwitted and entrapped, and, instead of being the captor of the wily Indians, had himself been captured. Policy alone, they said, had dictated to the Indians the advisability of allowing him to return, without massacring his whole command; so they compelled him to take out to the reservation all their old and worthless squaws, — all the non-combatants, in fact, — and then, with loins girded for battle, and with only their most agile warriors and the youngest of their squaws, they started to make reprisals upon the hated Mexicans.

This, in truth, would have been but consistent with the mistaken policy hitherto pursued by our government: to treat the Indian like a spoiled child, to allow him to pillage and murder all summer, then to cajole him into returning to the reservation, where he might fatten upon his ill-gotten gains all winter, and thus recruit for another campaign of terror. The noble red man thereby holds our prowess in light esteem, as well he may; for the spectacle of a nation of fifty million people quaking with dread over the anticipated depredations of less than three hundred Indians, is well calculated to inspire not only contempt but disgust.

But there are always two sides to a story, and I think that the following statement, furnished me by the same officer who prepared the map, and to whom I am indebted for a graphic description of the Apache country and the terrible journey undertaken into it, is not only entitled to the fullest confidence, but will bear the test of the revelations of the future.

"General Crook has been severely criticised by certain people because of their complete ignorance of the situation. First, the campaign is deemed a failure because it did not terminate in the utter extermination of the Chiricahua tribe of Indians. Secondly, his policy is condemned because he chose to accept the surrender of the Indians, instead of remaining in the mountains and continuing the pursuit.

"In answer to the first objection, it may be stated that the object of the campaign, as explained to the Mexican officers and understood by the troops under his command, was to free the

people of Mexico and the United States from further outrages by these Indians. There were two methods of coming to this end. One was by means of a large command, capable of subdivision, which would move along with little attempt at concealment and forcibly drive the enemy before them out of their strongholds in succession, and eventually surround and destroy them. This would have required several thousand troops, and it would have taken at least a year to accomplish the result. In the mean time, the misery and suffering inflicted on the poor inhabitants of Sonora and Chihuahua would be almost incredible, were these savages compelled to leave their mountain retreats and subsist entirely on the country.

"The other method was by means of a smaller body of picked material, capable of moving rapidly and quietly, and thus having the power of surprising and 'jumping' the savages, and yet strong enough to demoralize them by its superiority, and insure to itself success in any open engagement.

"The first method was not to be thought of, for one reason if no other, that the Mexican authorities are jealous of their rights, and would never permit a foreign army to move upon its soil.

"The other, although in many respects a superior method, could not be expected to annihilate the enemy, unless resort was made to treachery. The most that could be hoped was one decisive victory, which would cause a surrender; and then the management of the Indians after they were placed on a reservation would have to be relied on. This in simple terms was the plan of the campaign and its execution, in every particular. The Chiricahuas are now on the San Carlos reservation, far removed from their stronghold, surrounded by all the available forces of the United States army and a thousand faithful Indian allies. The future of these Chiricahuas, who will henceforth disappear from the view of the world, can be fairly estimated by that of the other Apache Indians. Little over five years ago, the whole Apache race was at war with the whites; but six thousand of them were subdued by General Crook, and placed on the San Carlos reservation, since which time there have been few outbreaks, and these of short duration.

"One point which has been omitted, and which the critics seem to dwell upon, is that no great battle was fought, and that none of Crook's command were killed. Had they read his report they would have seen that no such claim is advanced, but he modestly states that but nine Indians were killed; although there is hardly a man of the command who is not convinced that this estimate is too small. Crook's detractors note only the slight decrease of the enemy's forces, but lose sight of the fact that hundreds of innocent people are saved from future outrage, and an immense territory freed from raid and rapine."

At the time of the surrender of the stronghold, General Crook was assured by the Apache chief that the remainder of his band would follow him into United States territory and give themselves up, which the General confidently believed would be done. It was several months, however, before the recreant redskins made their appearance, having meanwhile secured, by means of bold and skilfully conducted raids, great herds of cattle and horses from Mexican haciendas. Then they hastened towards the reservation, where they could enjoy the protection of Uncle Samuel, and find a market for their stock.

It is believed that the object of the daring expedition is accomplished, and that, without bloodshed, General Crook has ousted the Apaches from the Sierras, and opened a new and virgin territory to the enterprise of the whites. Conjecturally, this region is stored with mineral treasure, and tradition points to numerous rich mines abandoned during two centuries of Apache depredations; and hundreds of prospecters are waiting for the moment when it shall be declared rid of savages, to put the truth of these rumors to the test.

It was late at night when I finally took horse again and departed from the Apache camp, with the weird music of Indian drums and the demoniac songs of the savages ringing in my ears. The night was cool and moonlit, such as compensates the dweller in this hot and arid region for his sufferings during the day, and the ride to Willcox, where we arrived at one in the morning, was quite enjoyable. With commendable enterprise, the keeper of the "Eureka House," desiring to satisfy the nat-

ural craving of the "tender-foot" for a sight of relics of the campaign, had placed in his window "the skull and a rifle of an Indian chief," and some Chihuahua currency "taken from the dead body of a noted warrior on the battle-field." As the currency was some I myself had lent mine host, and as I was not conscious of having plundered any dead Indian, the tender-foot naturally looked upon the other "genuine relics" with suspicion.

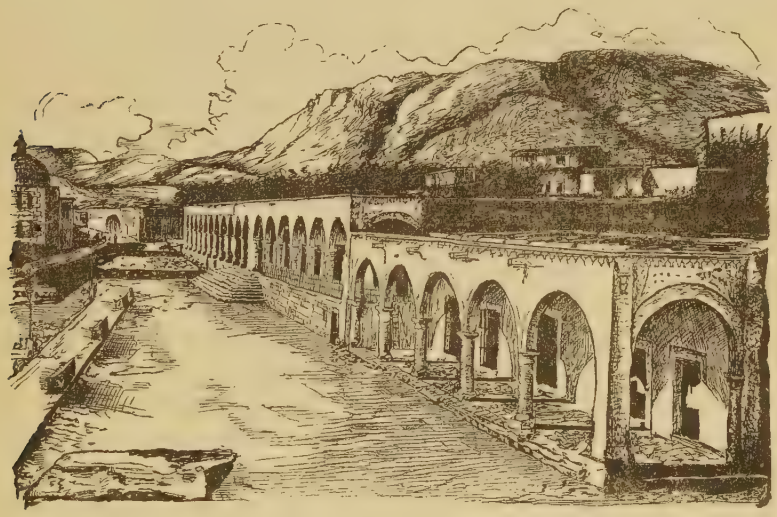
At noon, I took train for Sonora and the Gulf of California, through a waste and forsaken region, in which settlements are not stimulated by the local tariff of ten cents a mile for travel. The temperature along this route through Southern Arizona was about one hundred degrees, in such shade as it was possible to find. The general vegetation was cactus, the greatest types of which, the giant *petayah*, were most interesting. Benson is the first large and flourishing town west of Deming, from which it is one hundred and seventy-four miles distant. Only forty-six miles west lies the ancient Spanish settlement, now a flourishing city, of Tucson; but this city I did not visit, as my course lay towards and into Mexico, bearing south from Benson instead of west, crossing the rich mineral region which has made Arizona famous, both in the distant past and in recent years, and has sustained its claim to the ancient appellation of *Arezuma*, Land of Gold.

From Contention, on the line of the "New Mexico and Arizona," it is but ten miles to Tombstone, the banner town of Arizona, to which a stage runs on quick time. At Huachuca General Crook and staff left the train for the military post of that name, where their presence was needed for the final disposition of the troops guarding the Border.[1] They are, all of them, as modest and unassuming heroes as I ever had the good fortune to meet.

Calabasas is the name of the last station in United States

[1] General Crook's operations did not succeed in bringing the Apaches to a state of submission; and it was not until this offer had been replaced by General Miles that the vigorous campaign of the latter (in 1886) resulted in the capture of the turbulent spirits, headed by the famous Geronimo.

territory through which we pass previous to entering Sonora. It was once an old hacienda, near which was a gold mine, but was often depopulated, through Apache raids, and knew not the blessings of peace until the advent of the railroad. This, indeed, may be said of this entire region, every presidio and village of which existed only upon sufferance, half in ruins, guarded by cowardly Mexican soldiers, who rarely ventured beyond the mud forts, and allowed the Apaches to murder and plunder with impunity.



PORTALES OF ALAMOS.[1]

But not a village on the Border showed such sure evidences of settled peace as this quondam hacienda, on the night of our arrival. It was eight o'clock, and as we groped our way from the station to the hotel, where it was said a supper awaited us, darkness hid from our sight such a structure as we had not seen for days. We found a hotel there that reminded me of the edifice at Las Vegas, in New Mexico; and on inquiry I learned that it had been built by the same shrewd and far-seeing men

[1] A fine town of Southern Sonora, which derives its name from its beautiful alameda, — *alamos*, poplars, — and which does considerable trade in silver.

who guided the destinies of the great railroad, the Atchison, Topeka, and Santa Fé. And the supper! The last meal like it we had been able to obtain only at Deming, and the one before that at Wallace; and later on my trip I found that the great road aforementioned had built a line of magnificent hotels and dining-rooms, from the Missouri River — as far as its route extended — to the Mexican Border. "Eat like thunder," said an "old-timer," as we sat down to the table, "for you won't get another square meal till you get back here again!" And we ate; our Mexican friends — who, though strangers to good cooking, knew how to appreciate it — gorged themselves till their eyes stuck out like those of a shrimp, and the warning whistle bade them desist. Then I paid my dollar and departed, and in half an hour was over the line, again in Mexico, for the fourth time on this journey.

We had come down the valley of the Santa Cruz River, where the bottom lands, covered with luxuriant grass, and the banks, fringed with gigantic cottonwoods, made it the most attractive of any I saw in all Arizona. How tempting this region must have seemed to those prospecters who penetrated Sonora before Arizona became ours by the Gadsden Purchase! Seeing these delightful valleys, after their weeks of hardship on the arid plains above, they concluded that the whole great province was one equally desirable. But in this they were greatly mistaken. Speaking in general terms, Northern Sonora and Southern Arizona (at this point) are much more fertile than Northern Arizona and Southern Sonora.

The frontier town of Sonora, where the railroad enters, is Nogales, simply a double row of slab shanties and mud huts, the former being American, the latter Mexican. The customs officials of both republics may be found here, who make a pretence of examining one's luggage. As soon as the Border is crossed, you are impressed with the difference between American energy and Mexican thriftlessness. I was reminded of what an observant writer, Mr. Bartlett, once wrote of Tubac, which lies on the banks of the river of Santa Cruz: "In a book of travels in a strange country, one is expected to describe every

town he visits; but as for this God-forsaken place, when I have said that it contains a few dilapidated buildings and an old church, with a miserable population, I have said about all."

It was after midnight when we arrived at Magdalena, formerly a frontier town of much importance, but of which, as I only saw it by moonlight, I will borrow a description by J. Ross Browne, who made his mark upon this country twenty years ago: "The town is like all I have seen in Sonora, a parched-up confusion of adobe huts scattered over the slope of a barren hill, like so many mud boxes. The earth and houses are pretty much of the same material and color, while mesquit and petayah are the chief surrounding objects of interest and ornament in the way of vegetable life." But I remember that, going southward to Magdalena, we ran through fields and gardens, that we sorely missed beyond, with large trees standing up invitingly draped in masses of tangled vines.

A curious fraud has been recently unearthed here, regarding a reported discovery of ancient ruins, said to be but four leagues distant from Magdalena, and consisting of "a pyramid with a base of 1,850 feet, and a height of 750. On the walls of the gloomy rooms, cut out of solid stone, are numerous hieroglyphics, and representations of human forms, the hands of which, *strange to say*, have five fingers and one thumb, while the feet have six toes," etc.

Now, if these reports, frequently revived, ended with the papers that gave them birth, it would little matter; but, unfortunately, they have obtained credence, and have even been copied into an unreliable book on the Border States, the editor of which was more desirous to obtain notoriety than solicitous for the reputation of his work, and whose proceeding cannot be too strongly reprehended. As these mythical ruins were located on the borders of the Apache country, where a traveller ran extreme risk of his life, it will be seen what a reckless disregard these unscrupulous men had for the lives of those who should be lured here by their malicious lies. I had intended visiting the locality myself, but was dissuaded therefrom by Captain Bourke, Aide-de-camp to General Crook, who assured me that

he had been over the entire region, and that the whole story was a fabrication. There is indeed a curious natural formation there, worn into holes in which people may have lived, as nomads, or shepherds tending their flocks.

The moon lighted up a country mainly sterile, and daylight did not reveal one more attractive; but at six we reached the Sonora River, and the scenery underwent a most magical change. At seven we ran into the station at Hermosillo, the "beautiful town," and I took refuge and breakfast at the Hotel Cosmopolita, a one-story adobe, hard by the cemetery. This city, situated on the Sonora River, ninety miles from the Gulf of California, contains about 12,000 inhabitants. The soil of the highly cultivated valley of which it occupies the centre produces great crops of wheat, and its gardens are full of fruit in every variety, as oranges, melons, figs, lemons, plantains, dates, and pomegranates. Celebrated alike for its gardens and its lovely *doncellas*, Hermosillo has one other attraction that overtops them all, in a peculiar conical hill, called *El Cerro de la Campana*, or "Hill of the Bell," from the sonorous quality of the rock composing it, which gives out a clear ringing sound when pieces of it are struck together. Great masses of cane line the river and the irrigation canals, the *acequias*, while a verdurous vegetation surrounds and interlaces the adobe dwellings of town and suburbs. It is the distributing centre for the productions of the agricultural country of Northern and Central Sonora, and it also has some mines of local repute in its vicinity.

The climate is hot, though dry, the temperature exceeding 80° and even 100°, with little change throughout the year. The finest buildings of the State are found here, the principal ones being of stone, with the universal portales and arcades, seen in perfection in every Mexican town, a nice little plaza, and a half-wild park, and the population contains the flower of the Sonora aristocracy. In spite of the great heat, and the exceedingly filthy condition of the town, Hermosillo has generally escaped the epidemic diseases that sometimes ravage the coast; but in September, 1883, the vomito, then raging at Guaymas,

leaped over the intervening waste of country and spread itself over this pleasant valley.

On the morning of June 20th, as I was about taking train for Guaymas, I found the station full of ladies and gentlemen, who had come to greet the "divine Peralta," the famous prima-donna of Mexico. *Los Musicos*, the musicians, were assembled in force, and the brightest and prettiest of señoritas flitted gayly about, shielding their sweet faces and bright eyes from the too ardent rays of *el sol* with their fans, while the air was ringed and streaked with the smoke of a hundred *cigarros*. A sprightly Mexicano was circulating printed slips containing a *soneto* to the gifted singer, S'ra Angela Peralta de Castera, and everybody was on the tiptoe of expectation.

To the great disappointment of the unsophisticated beauties of Hermosillo, Peralta did not arrive; and the episode I had witnessed would have faded away, had I not read, in a paper of three months later, that the "Nightingale of Mexico," with several members of her troupe, had died of yellow-fever at Mazatlan. Poor Peralta! I doubt not that the gentle dames of Sonora are grieving over their sister's demise to this day; though they had cause to sorrow over their own ravaged households. I wonder if any of those graceful girls who regarded *el Americano* wonderingly through their grated windows, or if any of those airy young men who so politely did the honors of their city, have fallen victims to the plague. I hope not, though vague report leads me to fear that some were taken away.

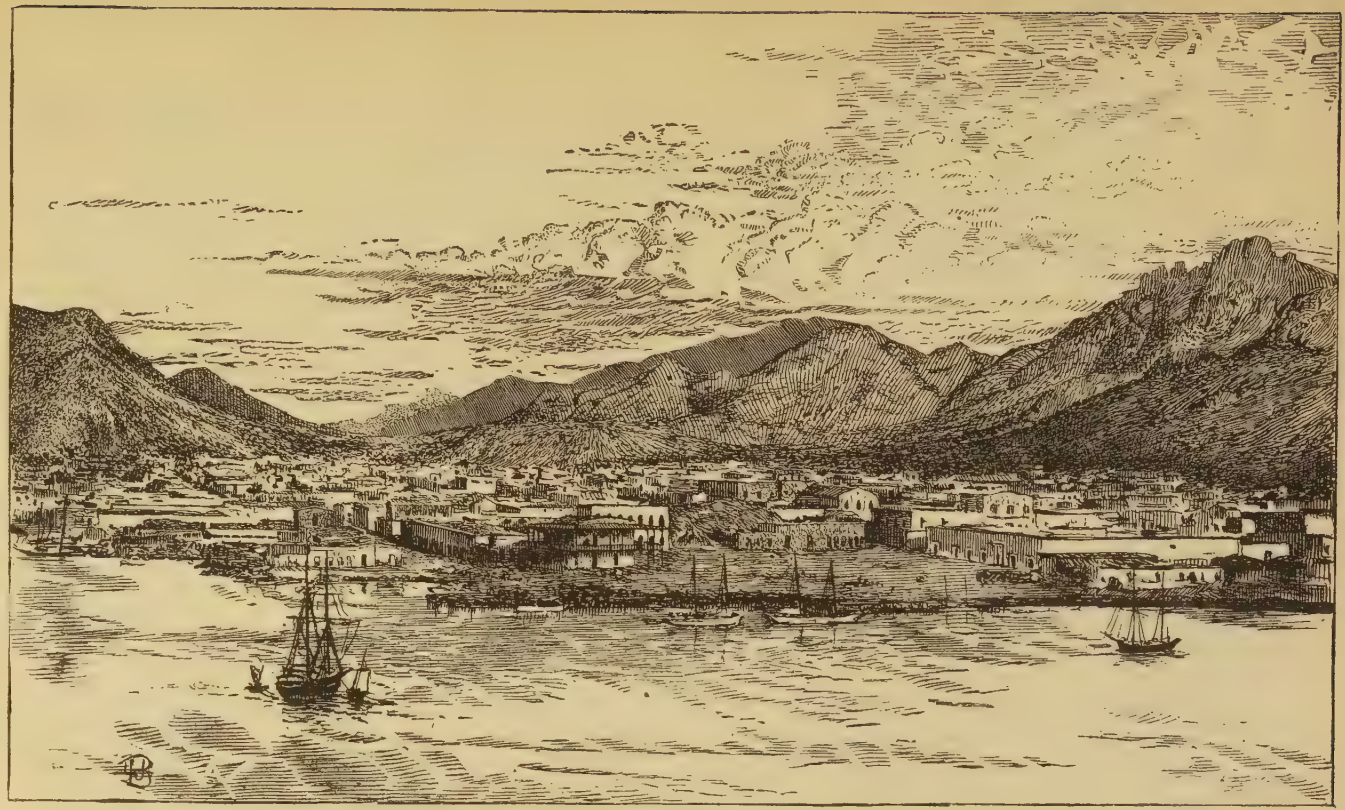
I remember with what gracious courtesy one of these lovely daughters of Hermosillo, an heiress in her own right to a beautiful estate and a deceased parent's horde of pesos, gave us permission to enter the patio of her dwelling, and with what evident pleasure she directed us to the blossoming gardens, where date palms and plantains mingled their leaves, and where the orange and fig trees were full of cooing doves and warbling songsters. The peace and delights of this place suggested that it might not be amiss to cast one's lines in it for good and all; and we did not wonder that some of our countrymen had been made captives by the gentle Mexicanas, who are said to lend a willing

ear to the wooing of the Gringo. The "dark-eyed señorita," especially in the Border States, is a very different being from the idealized creature of the painter and of the author who writes of the country before he visits it; yet there are some, to be met with at exceedingly long intervals, who are quite attractive. Real beauty few of them have, but nearly all are sweet-tempered and gentle-voiced, while sparkling eyes and milk-white teeth are theirs by right of birth.

The only town of importance beyond Hermosillo is Guaymas, chief port of Sonora, ninety miles distant, on the Gulf of California. The railroad running thither is a splendid piece of work, but wasted on such an ungrateful region as lies between these two points, for in the dry season there is hardly a green thing in sight. Though the rains will start the verdure of vegetation, they cannot change its character, and other than mesquit and cactus there is little variety; but of the latter there are many species, nearly all in bloom, the dry stalks gaudy in yellows and reds. Small animals, like jack-rabbits, are numerous, and skip away awkwardly as the train goes by.

Four miles distant from Guaymas a sea-breeze fans our cheeks, as the road crosses the blue waters of a broad lagoon, over a bridge and causeway five thousand feet in length, and then runs along attractive bays, and among cactus-covered hills. The fine station of the railroad is built on the neck of an isthmus terminating in a rocky promontory, half a mile distant from the town. The company owns all the approaches to the town, all the eligible harbor and coast sites, and has run a spur of the road, a mile or so in length, to a headland, where it has built a wharf, in water deep enough to float the largest steamers. This is done in anticipation of the trade that is to spring up when, a Trans-Pacific line of steamers running to Australia and China, traffic and travel shall take this course across our continent. The port is one of the best on the Mexican coast, being securely land-locked, enclosed on every side by hills, and its shores are a succession of island-dotted bays.

"Guaymas," says one of the numerous writers on Mexico, "is shut in from the Gulf, as well as from the winds, by high



TOWN AND HARBOR OF GUAYMAS.

rugged hills, entirely destitute of vegetation, and reflecting the rays of the sun until the place seems like a huge oven. . . . . The country around Guaymas, for a semicircle of about one hundred miles, is a blasted, barren desert, entirely destitute of wood, water, or grass, producing only cacti and a stunted growth of mesquit. The water is all procured from wells, has a brackish, unpleasant taste, and generally causes temporary diseases with those unaccustomed to its use."

Situated at a commanding point on the Gulf of California, Guaymas should control, with its unequalled connections with the United States, all the trade of the upper Gulf. One may voyage, even now, down the coast, to Mazatlan and Acapulco; and over across the Gulf, almost within sight, is Lower California, a fabled land of riches, but of hostile shores and desert interior. The vast Bay of Guaymas is ever alive with fish, and its oysters are reputed excellent; but there are few fishermen, the principal purveyors for all the markets being Indians, from down the coast, Yaquis and Mayos, who are agriculturists, likewise, and so far advanced as to deny the white man a residence within their towns. The Indians of Sonora are numerous and interesting; up the Gulf, on Tiburon Island, resides a curious family called the Ceres, which once was powerful and independent.

A good tramway connects railroad station and town, where the buildings are mostly of adobe, and all of one story. Most painful to note is the total lack of green; of gardens there are no visible tokens, save of one, over a hollow in the hills beyond the town, where a thrifty German has established himself, and taken possession of a small grove of palms, watered by a stream fed from an artesian well. On the way there you pass the water-works of Guaymas, a deep well, at which a stalwart Indian presides and doles out the *agua* to the donkey boys from the city.

If I have said there is not much here of interest, let me retract, in favor of these water-carriers of the town. They are going and coming all the day long, barefooted, barefaced little rascals, of Indian descent, who sit perched astride the burro's

hips, and guide him without a bridle, or even a stick. Let their pictures speak for them. Across the burro's back is thrown a wide sack of leather, a pouch of which on either side is filled with water, which is dispensed to customers through an aperture in the bottom, stopped up by a cow's horn, which fills it tightly, owing to the pressure from above.

Notwithstanding the intense heat, and the fever season in prospective, the authorities of Guaymas permitted filth and garbage to stare one in the face at every turn. As might have been expected, the vomito came upon the town in August, and raged so fiercely that few of the living remained to care for the sick and dead. It was the first visitation in many years so fatal in its consequences; and if the local officers accept the lesson, and use their endeavors to cleanse the place, there need not be such a recurrence of the evil.

Charles Kingsley once called the port of St. Thomas a Dutch-oven of a place, and it is not far different in its surroundings from Guaymas, both being half surrounded by blistering hills; but the former has an advantage in the free circulation of air. One hundred degrees is a temperature often reached in Guaymas, while ninety-five is considered remarkably cool. During the two nights I dwelt there I nearly perspired myself away, though all the doors of the hotel were open from sunset to sunrise. Music and moonlight contributed to the enjoyment of evenings passed in the plaza, and after the *musicos* had departed it was interesting to watch the people pouring out of their adobe hives, and stretching their cots in the streets and on the sidewalks. Not alone men and boys, but girls and women, were taking up their beds and planting them outside the walls, where only they could get a breath of air not heated to the temperature of a sirocco blast.

Guaymas, just previous to my arrival, had passed through a gold fever without a precedent in several years. Reports had come across the Gulf of the finding of placer gold, in the remote district of Mulegé, in the great abundance that in Upper California astonished the world a century ago. People poured down from the mining regions of Arizona, drawn to this region

DONKEY BOYS OF GUAYMAS.

by the representations of some shopkeepers of Guaymas, who wished to reduce the goods in their overstocked stores.

Mulegé is situated southwest of Guaymas, across the Gulf, and could only be reached by sailing-vessels, which were overcrowded and poorly provisioned. Arrived on the eastern shore of Lower California, those who started for the mining region were obliged to cross a waterless desert, only to find the gold district a fraud and disappointment. Their sufferings, of which they had a foretaste on shipboard, were intense, from want and thirst, and nearly all returned to Sonora in rags and poverty.

At no time has Lower California been the rich country that tradition makes it to be, although some of the first religious missions were established here, and have formed the nuclei for settlements which exist at the present day. Near Mulegé itself, surrounded by desert and far remote from civilization, is a conventual structure that is most impressive in its ruin and decay. It stands there, abandoned to Indians and wild beasts, a type of the mission building of the distant past, when every church was also a fort, and every religious edifice a veritable castle.

Gold and silver, pearls and precious stones, have been the alluring phantoms that have beckoned the fortune-hunter on to the Gulf of California for centuries past. Pearls, indeed, have been found here in great abundance. Fifty years ago, it is said, even the common people wore them; but of late the fisheries have languished, as their seeking requires great endurance in the divers, and the efforts to introduce diving-bells have not met with success.

It was here at Guaymas, on the shore of the great Gulf, whose unknown waters were sailed by Cortés and his hardy crew three centuries and a half before, that I turned about for the United States, travelling northward and eastward, and finally reaching home after a roundabout journey of ten thousand miles by rail.

In bringing my travels to so peaceful a conclusion I feel that I shall incur the displeasure of my reader, who will doubtless frown upon a book on Mexico without a robber or a bandit in

it. Yet I have wandered in many places noted as the haunts of both, and it has not been altogether my own fault that I had no particularly exciting adventures, and did not shoot anything more harmful than a stump. With this, let me say farewell. Our journey is ended.

ADIOS !

BOOK IV.

MEXICAN RESOURCES.

MEXICAN RESOURCES.

AREA.

THE territory of the Mexican Republic extends from north latitude 15° to 32°; and from 12° 18′ 46″ of east longitude, to 18° 6′ 15″ of west longitude of the meridian of the City of Mexico, the capital; this being in west longitude from Greenwich, 99° 5′ 25.″ The territory contiguous on the north belongs to the United States, and that on the south to Guatemala, while the Gulf of Mexico bathes its eastern shores, and the Pacific its western, giving to it a coast-line of nearly 6,000 miles. Within the above limits is inclosed a superficial area of 1,958,912 square kilometres, or 766,000 square miles. Its greatest length, along the axis of the territory, mainly represented by the gigantic dorsal ridge of the Sierra Madre, is 1,970 miles, in a straight line from the northwestern extremity of Lower California to the southern border of Chiapas. Its maximum breadth, from east to west, on the line of north latitude 26°, is about 750 miles, and its minimum, at the Isthmus of Tehuantepec, 140 miles.

BOUNDARIES.

In ancient times New Spain included the territory lying between north latitude 15° and 42°. By the treaty between Spain and the United States (Feb. 22, 1819), the boundary was defined as commencing at the mouth of the Sabine River of Texas. By the Treaty of Guadalupe (Feb. 2, 1848), the Rio Grande, or Rio Bravo del Norte, forms the division between Mexico and the United States, starting at a point three leagues from its mouth. By the "Gadsden Purchase" Convention, 1853, the United States received a further addition of Mexican territory, amounting to 45,535 square miles. The dividing line between the two republics now follows the course of the Rio Grande, north, to north latitude 31° 47′, thence 100 miles westward on the same parallel, whence it runs south to parallel 31° 11′, follows this line to meridian 111° from Greenwich, thence northwest to the Rio Colorado, and up that river to the boundary between Upper and Lower California, which is followed to a point south of San Diego, on the Pacific. Prior to the treaty of 1848, it was estimated that the area of Mexico was over 1,650,000 square miles; but, by comparison, it will be seen that the United States gained over half this territory, by an excess of 100,000 square miles.

CONFIGURATION OF THE COAST.

Although the plains of the coast-region are low, the greatest portion of Mexico lies high above the sea. Of its 6,000 miles of coast-line, about 1,600 pertain to the Atlantic or Gulf of Mexico; and 4,200 to the Pacific and Gulf of California. Very few bays indent the coast. These are, Ascension, Espiritu Santo, and Chetmul on the Yucutan Peninsula; Manzanillo, on the Pacific; and Magdalena and others in Lower California. But the east coast is broken by extensive lagoons, like that of Terminos, and the great Gulf of California separates the peninsula of that name from the main portion of Mexico. Of secure harbors, there are none on the east coast, and but very few on the west, — Acapulco, San Blas and Guaymas, being the only inlets with deep water and protecting shores. The ports of Mexico, open to foreign commerce, are: on the Pacific, Acapulco, Guaymas, La Paz (Lower California), Mazatlan, Manzanillo, Puerto Angel, Salina Cruz, San Blas, Soconusco and Tonalá. Open to coastwise trade, only: Altata, Bacorchuis, Cabo de San Lucas, Mulegé, Navachiste, Navidad, Puerto Escondido, Tecoanapa, Topolovampo, Valle de Banderas, Yavaros and Zihuatanejo. On the Gulf of Mexico, open to foreign commerce, are: Anton Lizardo, Campeche, Carmen, Goatzacoalcos, Frontera, Progreso, Tampico, Tuxpan and Vera Cruz. To the coasting-trade: Alvarado, Dos Bocas, Nautla, Soto la Marina, Santecomapan and Tecolutla.

The only peninsulas are Lower California and Yucatan; which latter belongs to Mexico politically, but physically is widely separate from it. Several islands, though of little importance, lie off its coasts.

PHYSICAL FEATURES OF THE PLATEAUX.

Generally speaking, the main body of the Mexican territory is a vast table-land, a distinct geographical region, traversed by mountain-chains of great length, and rising to extraordinary heights. Leaving out Yucatan and contiguous country, we may describe Mexico as consisting of a series of plateaux, lying mainly above a height of 6,000 feet; extending from the confines of Guatemala, to the northern limit of its boundary-line; falling abruptly towards the coast on either hand, and descending gradually to the plains of Texas and Arizona in the north.

In the south, we have the Valley of Oaxaca, 4,500 feet; next of Pueblo, about 7,000 feet; of Anahuac, 7,500 feet; and, going north, along the axis of this table-land, find Durango at an altitude of 6,600 feet; Chihuahua, 4,600 feet; El Paso, 3,800 feet, while Santa Fé, New Mexico, again lies at 7,000 feet above the sea. The extent of the plateaux is about 1,500 miles in length, by 500 miles in breadth. Of the vast mountain system, forming the escarpment to this elevated region, the Sierra Madre, of the Pacific coast, the great "Mother Range," is the longest continuous chain, extending from the Isthmus of Tehuantepec to Arizona. The eastern Cordillera, or chain, runs more directly northward, from its initial point, and at a lesser mean elevation, of, perhaps, 6,000 feet; while the western carries an altitude of nearly 10,000 feet.

Traversing this longitudinal system from east to west, are several cross-ridges, due to igneous action, and containing some of the highest volcanoes in North America. Of the numerous mountains that rise conspicuously above the plateaux, there are twenty above 4,000 feet in height, and nine that surpass even 10,000 feet.

These are, as given by the Mexican geographer, Cubas: Popocatapetl, 5,400 metres; Orizaba, 5,295; Iztaccihuatl, 4,775; Nevada de Toluca, 4,440; Cofre de Perote, 4,089; Zempoaltepetl, 3,668; Ajusco, 3,575; Volcan de Colima, 3,396, and Quinceo, 3,324 metres. "The most interesting feature of the distribution of volcanoes," says a learned writer, "is that nearly all are situated along the mountain-chains and rows of islands which border the shores of the continent, while the interior of these great land masses is nearly free from them." This seems to be exceptional in Mexico, as the highest and most noted volcanoes, as Popocatapetl, Nevada de Toluca, Cofre de Perote and Jorullo, are in the centre of the table-land, and traverse the country in a line from west to east. All the Mexican volcanoes are either extinct or quiescent; none have been in eruption in the present century, though smoke has been seen issuing from the crater of Popocatapetl.

The Mexican river system, owing to the rugged configuration of the surface, is neither varied nor extensive. Most of the rivers are short, and little more than impetuous torrents or sluggish bayous, without navigable depth of water. The steep mountain-slopes are quickly drained, and the great plateaux rapidly absorb the waters that fall into them, owing to their aridity. The surface of the table-land is cut up into innumerable barrancas and ravines, some of profound depth, caused by the plunging torrents, speeding on their way to the sea. Since the comprehensive railway system of Mexico has been projected, the canalization of Mexico will not be needed, nor will the almost total lack of navigable waters be sorely felt. Even the longest streams (such as the Rio Grande, which forms the boundary line between Mexico and Texas, and is about 1,500 miles in length), are navigable for but a short distance. There are some twenty rivers above one hundred miles long, the principal of which are: the Rio Grande, the Santiago, 500 miles; the Balsas, 400; Yaquis, 375; Grijalva, or Tabasco, 330; Usumacinta, 320; Conchos, 300; Mezqintal, 310; Panuco, 275; Altar, 260; Nazas, 260; Sinaloa, 250; Fuerte, 240; Mayo, 200; Ures, 200; Alvarado, 150; Culiacan, 150; and Goatzcoalcos, 140 miles.

The number of lakes in Mexico is very small, and may be counted upon one's fingers. Leaving out the lagunas, which are merely bodies of salt water separated from the Gulf by sand-banks and shoals, we find not more than ten inland lakes. These are, the five lakes and ponds of the Valley of Mexico: Tezcoco, Chalco, Xochimilco, Xaltocan, and Zumpanzo; Chapala, the largest in Mexico, having an estimated area of 1,300 square miles, situated in Jalisco; two or three small bodies in the laguna country, in Chihuahua and southwest Coahuila. The lacustrine basins, though of sufficient area, are so arid and so exposed to the influences of a hot climate, at a great altitude, that evaporation is rapid, and causes the total disappearance of many streams and even lakes.

CLIMATE AND SEASONS.

So intimately connected are climate and vegetation, that to indicate the variations of the one is to suggest a corresponding change in the flora of the country.

Were Mexico nearly level from gulf to ocean, it would have mainly a tropical climate, as it lies to a great extent south of the northern tropic; but, owing to physical causes, a large area of its territory enjoys the climate of the temperate zone. Rising by successive stages to a height of nearly 18,000 feet, the temperature, of course, undergoes a diminution corresponding with the elevation above the sea.

Thus the coast, for quite its entire length, is hot, and much of it extremely unhealthy. The low-lying region appertaining to it is well designated the *tierra caliente*, or "hot country," in which the humid atmosphere perpetually nourishes a vegetation peculiarly tropical. The mean annual temperature of this climatic zone ranges from 75° to 82° (Fahr.), the extremes being from about 55° to 105°. Its influence is felt to an approximate altitude of about 3,000 feet above the sea. It may be safely visited, as a rule, between the months of December and April, when the heated coast is subject to violent gales called northers — *los nortes*, which cool the air, and dissipate the germs of disease. At an altitude above sea-level of about 3,000 feet, we enter the *tierra templada*, the "temperate country," where the average mean annual temperature is about 70°, and the extremes 50° to 86°. Extremes in temperature are almost unknown in this zone, a delightful coolness prevailing in the shade, while the vegetable forms, though not entirely characteristic, blending as they do those of both the lower and upper regions, are of most astonishing variety.

The prevailing climate of the *tierra templada* is warm and moist, the precipitation from the clouds from the Gulf (on the eastern coast) being great, and the rainfall greater than either in the higher, or the lower zone. The classification is an arbitrary one, and it is difficult to say just at what elevation each zone overlaps and merges into the other; but it may be roughly stated that the *tierra caliente* extends upward from the coast to a vertical height of 3,000 feet, the *templada* from 3,000 to 7,000 or 8,000, — the verge of the table-land, — while above that altitude is the *tierra fria*, or "cold region," with a vegetation varying from the corn and barley, and maguey of the lower levels to the cryptogamia of the mountain-tops. The mean annual temperature of the *tierra fria*, which includes the greater portion of the vast plateau, is about 60°, the extremes reaching from 75° to the freezing-point. Travel on the table-land may be equally agreeable, summer or winter, excepting that it is liable to frequent detentions during the rainy season.

The Mexicans divide the year into two periods: *el estio*, or the dry season, and *la estacion de las aguas*, or the rainy season. The latter comprises the months of June, July, August, and September, while the dry season extends over the greater portion of the rest of the year. "The curving shores of Mexico along the Gulf and interior highlands gather and hem in an immense body of vapor, which is carried on by the trade-winds, and condensed against the cold and lofty inland mountain-peaks which rise above the limit of perpetual congelation. This occurs during the dry season, whilst the sun is at the south. But when its power increases, as it advances northward, and until it has long turned back again on its southern course, these vapors are dissolved by the hot intertropical air, and descend almost daily in fertilizing showers."

Electric storms and water-spouts rarely occur, except in certain well-determined localities, as at various points on the coast. Earthquakes are infrequent, and seldom destructive, being rather *temblores*, or tremblings, than *terremotos*, or shakings.

The duration of the day, in winter, including morning and evening twilight, is 12 hours 35′ to 13 hours 40′; in spring, 14 hours 36′ to 15 hours 38′; in summer, 15 hours 54′ to 16 hours 44′; and in autumn, 13 hours 52′ to 14 hours 46′.

ZONES OF VEGETATION.

Although the indigenous plants of Mexico are by no means few in number, it now possesses, undoubtedly, through its Old World acquisitions, the richest economic

flora of any country on the globe. This is owing to the fact that a goodly portion of Mexico lies within the tropics, and at the same time attains to a great elevation above the sea; in other words, *altitude* confers upon this elevated region beneath the northern tropic all the variety of climate that one would meet with in journeying from the equator to the pole. The vegetable world, says the German writer Sartorius, is of course always determined by the nature of the soil; on a calcareous soil we find a different description of plants to those which are met with in trachyte or porphyry; for instance, in lime we have chiefly fan palms and malvaceæ: but the conditions which the elevation above the sea produce, the *isothermal line*, would everywhere call forth analogous appearances.

The Old World has sent here its apples, pears, cherries, peaches, oranges, figs, grapes, and pomegranates; by their side flourish the East Indian mangoes, papaws, the American ananas (6 species), mammees, aguacates, spondias, the fruit of the passion-flower, excellent cactus fruits, gourds of all kinds, and many others.

"An Indian village of the temperate zone, where coast and hill country meet and blend, presents a truly delightful picture, surrounded by heavily-laden orange-trees and banana-stalks, by fruits of every imaginable hue, and by the blossoming shrubs which invariably follow the steps of man."

In the lower, or coast, regions, as high as 1,500 feet, we have coconuts, cacao, vanilla, cotton, cloves, nutmegs, peppers, and the other spices of commerce, besides all the fruits of the tropical countries of the East and West. Up to 4,000 feet grow sugar and coffee, indigo, rice, tea, banana, and tobacco, besides the productive edible roots: manioc, yam, arum, arrow-root, sweet potato, curcuma and ginger, and all the fruits of America, Central Asia, and Barbary. From this point upwards begins the cultivation of the cerealia of the Old World, such as barley and wheat, of the oleaginous plants (olive, poppy, rape, and linseed) of pulse and kitchen vegetables, of grapes for wine, and every kind of European fruit. The mulberry tree finds its climate at the height of from 3,000 to 6,000 feet above the sea.

From the following partial catalogue of the fruits and vegetables cultivated in Mexico, one may be led to believe in its agricultural possibilities. It was Humboldt who estimated the value of the gold and silver of the Mexican mines at the beginning of this century, vast as it was, as less by almost a fourth than that of the territorial produce. Mexico, as its national statistician very truly remarks, has the markets of all the world constantly open for the excess of her agricultural productions, for, such is the varied nature of her soil and climate, that there is scarcely a plant that grows, or a fruit that ripens, or a grain that matures its seed, that may not find a congenial home within her limits. Plants of the different zones, from frigid to torrid, are all found in the ascent from coast to table-land, and indicate to a nicety the different degrees of altitude and temperature.

Not only can she export many of the cereals, but she has almost a monopoly of several peculiar products of the tropics, and, owing to the combined advantages of topography and climate, can supply foreign markets with immense quantities of such valuable articles as coffee, cacao, henequen, tobacco, vanilla, and precious woods.

MEXICO'S ECONOMIC FLORA

Under this distinctive title, while no attempt has been made to compile an exhaustive botanical catalogue, — which would be quite unnecessary, even if prac-

ticable, — the author here presents statistics valuable to those interested in the *industrial possibilities* of Mexico. This information has been obtained almost entirely from Mexican sources, and, though perhaps incomplete, is at least an approach to that accuracy so desirable in a statement of Mexico's material resources, and valuable as an offset to the misrepresentations of misinformed or prejudiced writers.

Many of the names in the following list, being native to the country, generally Aztec, are not found in any Spanish dictionary; but all the most important woods, fruits, etc., are given, with not only the indigenous appellations, but their English equivalents. The flora of Mexico is rich and varied, embracing, says its statistician, over ten thousand species, known and analyzed. Her woods are valuable, a great number of her native plants have medicinal qualities, and her flowers are beautiful and of exquisite fragrance.

These lists comprise mainly those Mexican plants valuable for their properties, and those interesting from flowering at a great altitude, and typical of the tablelands; a strictly scientific classification has not been adopted, as this would have been impracticable.

TIMBER AND CONSTRUCTION WOODS.

Mexican Name.	English.	Mexican Name.	English.
Ahuehuete.	Cypress.	Majahua.	(Bark is used for cordage).
Aile.			
Alamo.	Poplar (3 species).	Mangle.	Mangrove.
Acana.	A hard, reddish wood.	Mango.	Mango.
Amate.		Nogal.	Walnut (2 species).
Capire.	Black and yellow.	Olmo.	Elm.
Capulin.	Tree with fruit resembling cherry.	Ocuna.	
		Palo Dulce, de María, morado mora, bravo, colorado y de hierro.	Licorice, violet, mulberry, redwood, ironwood, etc.
Capulincillo.	Do. do.		
Cedro.	Cedar (3 species).		
Ciprés.	Cypress.	Pareta.	
Ceiba ó pochote.	Silk cotton.	Pino.	White, resinous, and red pine.
Castaño.	Chestnut.		
Canté.		Pinavete.	
Ciruelo.	Plum.	Perú.	
Encino.	Oak (white, black, and yellow).	Quiebra hacha.	Break-axe.
		Roble (blanco y encino.	Oak (white and evergreen).
Fresno.	Ash.		
Fresnillo.	Little Ash.	Sabino.	Sabin.
Frijolillo.		Sauz, verde, blanco, y mexicano.	Willow (green, white, Mexican).
Guachipilino.			
Guamuchil.		Suchil.	
Guàsima.		Sabicú.	
Garrapata.	Tick-tree.	Tamarindo.	Tamarind.
Garrapatilla.	Little tick-tree.	Taray.	Tamarisk.
Haya.	Beech.	Tampincerán.	
Huitzache.		Tepehuaje.	
Hobo.		Tlaliscuahuitl.	
Hasta.		Tepozan.	
Jahua.		Tecomate.	Gourd-tree.
Mamey.	Mammee-tree.	Zaya.	
Madroño.	Strawberry-tree.	Zopilote.	

We find in profusion, in the tropical forests of southern Mexico, those valuable woods which are only seen beneath the almost vertical sun of the Tropics. It will be seen that Mexico has not less than twenty varieties of wood, useful in the joiner-work, and for interior furnishing, while about sixty are enumerated as in use for timber. In effect, Mexico has all the useful timber-trees of the North, with all the added precious woods of the South. Among woods noted for their fineness of grain, and susceptibility to polish, may be mentioned: ebony, lignum-vitæ, mahogany, manchinille, rosewood, sapota and violet-wood. Among trees famous for their size, and the durability of their wood, are the cedars, cypresses, ceibas, or silk-cottons, chestnuts, oaks, pines, tamarinds, tamarisks, etc., etc., — a long list.

CABINET AND DYE WOODS.

Mexican Name.	English.	Mexican Name.	English.
Avellano.	Hazel.	Primavera.	Primrose.
Almendro.	Almond.	Zapote blanco.	Sapota (white).
Bálsamo.	Balsam.	Zapote prieto.	Sapota (blackish).
Boa.		Añil.	Indigo.
Caoba.	Mahogany.	Agrita.	
Caobilla.	Little Mahogany	Achiote.	Arnatto.
Ébano.	Ebony.	Brasil.	Brazil-wood.
Granadillo.	Passion flower.	Campeche.	Logwood.
Guachichil.	(A hard wood.)	Cascalote.	
Guamuchil.		Ébano verde.	Green ebony.
Ilamo.		Huitzache (fruit).	
Linaloé.	Aloes-tree.	Lentisco.	Mastic.
Laurel.	Laurel.	Mangle.	Mangrove.
Lloron (Sauce).	Weeping willow.	Palo amarillo.	Fustic.
Manzanilla.	Manchinille.	Palo mulato.	Tawney wood.
Ojo de Pájaro.	Bird's-eye.	Timbra.	Mountain hyssop.
Palo morado.	Violet wood.	Azafran.	Saffron.
Palo de rosa.	Rosewood.	Orchilla.	Archil.
Palo santo.	Lignum vitæ.	Rubia (*raiz de tinta*).	Madder.

GUM, RESIN, AND OIL-YIELDING PLANTS.

Mexican Name.	English.	Mexican Name.	English.
Almácigo.	Mastic.	Alegria.	Oily grain.
Drago.	Dragon-tree.	Almendro (fruit).	Almond.
Mezquite.	(Its gum is equal to gum-arabic.)	Cacahuate.	Pea-nut.
		Chia.	Lime-leaved sage.
Hule.	Caoutchouc.	Coacoyutl (fruit).	
Ambar amarillo.	Amber (yellow).	Coco (fruit).	Coco palm.
Copal.	Copal.	Nogal (fruit).	Walnut.
Copalchi.	Liquid amber.	Nuez moscada.	Nutmeg.
Pino de trementina.	Turpentine-tree.	Olivo (fruit).	Olive.
Abeto.	Silver-tree.	Linaza.	Linseed.
Acebuche.	Wild olive.	Nabo.	Rape.
Ajonjoli.	Beneseed.		

CEREALS, ALIMENTAL PLANTS, ETC.

Mexican Name.	English.	Mexican Name.	English.
Apio.	Celery.	Chile.	Red pepper (many kinds).
Alcancil or Alcachofa.	Artichoke.	Escarola (lechuga china).	Endive.
Acedera.	Sorrel.	Espárrago.	Asparagus.
Aceituna.	Olives.	Espinaca.	Spinage.
Acelga.	Beet.	Frijole.	Beans; French beans.
Alcaparra.	Caper.	Garbanzo.	Chick pea.
Ajo.	Garlic.	Haba.	Garden beans.
Alverjon.	Vetch.	Hejotes.	String beans.
Arroz.	Rice.	Lechuga.	Lettuce.
Brocoli.	Broccoli.	Lenteja.	Lentil.
Berengena.	Egg-plant.	Maguey.	American agave.
Brichuela.		Maíz.	Corn (every variety).
Cacao.	Cocoa.	Nabo.	Rape.
Café.	Coffee.	Name.	
Comino.	Cumin Seed.	Papa.	Potato.
Col ó repollo.	Cabbage.	Pepino.	Cucumber.
Coliflor.	Cauliflower.	Puerro.	Leek.
Calabazas.	Pumpkins, gourds, etc.	Perejil.	Parsley.
Caña de azúcar.	Sugar-cane.	Pimienta.	Pepper.
Cardo.	Garden artichoke.	Rábano.	Radish.
Camote.	Sweet potato.	Trigo.	Wheat.
Cebada.	Barley.	Verdolaga	Purslain.
Cebolla.	Onion.	Yuca ó guacamote.	Yucca.
Chayote.		Zanahoria.	Carrot.

TEXTILES.

Mexican Name.	English.	Mexican Name.	English.
Algodon.	Cotton.	Lino.	Flax.
Cañamo.	Hemp.	Ramié — Ramee.	China grass.
Henequen.	Sisal hemp.	Seda vegetal.	Vegetable silk.
Ixtle.	Aloe fibre.		

It will only be necessary to call attention to the following list, to have it made evident that there is hardly a fruit in the known world that has not found, or cannot find, a congenial home in Mexico.

The most valuable, and those least known to dwellers in the north, will be found described after their respective appellations. To mention all would be to enumerate nearly every variety cultivated in both habitable zones, and far exceed the limits of this work, or, indeed, of any book not specially devoted to horticulture.

While every fruit can be grown in Mexico, it is a well-known fact that those indigenous to other countries do not here preserve their original fine flavor, the peaches, pears, etc., being hard, coarse, and, in a measure, flavorless.

THE FRUITS OF MEXICO.

Mexican Name.	English.	Mexican Name.	English.
Ahuacate.	A delicious American fruit.	Madroño.	Strawberry-tree.
		Melon comun.	Melon.
Albérchigo.	Peach.	Melon de agua.	Water-melon.
Albericoque.	Apricot.	Melon de olor.	Musk-melon.
Anona.	Custard apple.	Melon zapote.	Sapote-melon.
Arrayan.	Myrtle.	Mamey.	Mammee.
Breva.	Variety of fig.	Nanche.	
Caimito blanco.		Naranja de China.	Orange (China).
Caimito morado.		Naranja ágria.	Orange (sour).
Capulin, blanco y negro.	American cherry.	Nuez de Castilla.	Spanish walnut.
Cereza.	Cherry.	Níspero.	Medlar-tree.
Coco.	Coco-nut.	Prisco.	A kind of peach.
Castaña.	Chestnut.	Piña.	Pine-nut.
Cidra.	Citron.	Poma rosa.	Rose-apple.
Ciruela.	Plums (all varieties).	Peras (de nueve clases).	Pears (nine varieties).
Cuaginicuil.		Pingüica.	Oil-nut.
Chabacano.	A kind of apricot.	Papaya.	Papaw.
Chirimoya.		Pitahaya.	Giant cactus.
Chicozapote.		Pachona.	
Damasco.	Damson.	Plátano grande.	Plantain tree.
Durazno.	Peach.	Plátano guineo.	Plantain (Guinea).
Dátil.	Date.	Plátano manilo.	Plantain (Manilla).
Fresa.	Strawberry.	Plátano manzano.	Plantain (Apple).
Grosella.	Currant.	Sandia.	A Water-melon.
Garambullo.		Tejocote.	
Guanavana.		Tuna blanca.	Tuna (White), Indian fig, or prickly-pear.
Granada China.	Pomegranate.		
Guinda.	A cherry.	Tuna amarilla.	Tuna (yellow).
Guayaba.	Guava.	Tuna encarnada.	Tuna (pink).
Higo.	Indian fig.	Tuna cardona.	Cochineal cactus.
Hilama.	A chirimoya.	Uva.	Grape (all varieties).
Hicaco.		Uva blanca.	Grape (white).
Jícama.	Farinaceous root.	Uva moscatel.	Grape (fox).
Lima.	Lime.	Uva negra.	Grape (black).
Limon ágrio.	Lemon (sour).	Uva silvestre.	Grape (wild).
Limon dulce.	Lemon (sweet).	Zarzamora.	Blackberry.
Limoncillo.	Little lemon.	Zapote blanco.	Sapota (white).
Mango.	Mango.	Zapote negro.	Sapota (black).
Manzanas.	Apples (seven varieties).	Zapote amarillo.	Sapota (yellow).
Membrillo.	Quince.	Zapotillo.	Little sapota.
Mora.	Mulberry.		

MEDICINAL PLANTS.

MEXICAN NAME.	ENGLISH.	MEXICAN NAME.	ENGLISH.
Adormidera.	Poppy.	Marihuana.	
Anacahuite.		Manzanilla.	Chamomile.
Amapola.	Poppy.	Mejorana.	Sweet marjoram.
Ajenjo.	Wormwood.	Mostaza.	Mustard.
Apio.	Celery.	Morera.	Mulberry.
Artemesa.	Mug-wort.	Maravilla.	Heliotrope.
Albahaca.	Sweet basil.	Mezquite.	
Alhucema.	Lavender.	Mixtamazuchil.	
Altea.	Marshmallow.	Neldo.	
Achicoria.		Orozuz.	Licorice.
Alfilerillo.		Ojo de perico.	Parrot's eye.
Arrayan.	Myrtle.	Palo mulato del salvaje.	
Anis.	Anise.	Polēo.	Pennyroyal.
Azafran del pais.	Saffron (native).	Perejil.	Parsley.
Ajenjabe.	Wild mustard.	Peonia.	Peony.
Betonica.	Betony.	Pimienta.	Pepper.
Borraja.	Borage.	Papaloquelite.	
Beleño.	Henbane.	Pata de Leon.	Lion's foot.
Berro.	Water-cress.	Pastora.	
Culantrillo.	Maiden's hair.	Paretaria.	
Canchalahua.		Pipitzahua.	
Cicuta.	Hemlock.	Ruda.	Rue.
Centaura.	Centaury.	Rosa de Páscua.	Easter-rose.
Capitaneja.		Rosa laurel.	
Cohombro.	Snake cucumber.	Quina.	Cinchona.
Calahuala.	Calaguala.	Romero.	Rosemary.
Cañafistula.	Cassia fistula.	Sasafras.	Sassafras.
Canuela.	Fescue grass.	Siempreviva.	House-leek (red and yellow).
Cuchalate.			
Calabaza chicayota.	Calabash.	Sabina.	Savin.
Contrayerba.		Salvia.	Sage.
Cardo santo.	Holy thistle.	Sauco blanco.	Elder.
Cebadilla.	Cevadilla.	Sanguinaria.	Knot-grass.
Damiana.		Tamarindo.	Tamarind.
Digital.	Foxglove.	Tianguispepetla.	
Escorzonera.	Viper-root.	Trompetilla.	
Espinosilla.		Torongil.	Balm.
Fresno.	Ash.	Tornillo.	
Genciana.	Gentian.	Trebol.	Trefoil.
Gordolobo.	Mullein.	Tlacopatle.	
Guayacan.	Lignum vitæ.	Té silvestre.	Wild tea.
Hinojo.	Fennel.	Tilia.	Lime-tree.
Higuerilla.	Castor-oil plant.	Tabaco.	Tobacco.
Incienso.	Incense (gum).	Vainila.	Vanilla.
Ipecacuana.	Ipecacuanha.	Valeriana.	Valerian.
Jalapa.	Jalap.	Verbena.	Vervain.
Lupulo.	Hops.	Verdolaga.	Purslane.
Laurel.	Laurel.	Yerba buena.	Mint.
Linaza.	Flaxseed.	Yerba del pollo.	
Limoncillo.	Lime.	Yerba del zapo.	
Lengua de cierro.	Hart's tongue.	Yerba de la golondrina.	
Manrubio.		Yoloxuchil.	
Mastuerzo.	Cress.	Zarzaparilla.	Sarsaparilla.
Malva.	Mallow.	Zumpanitl.	

FLOWERS AND ORNAMENTAL PLANTS.

Following is a partial list of the flowers, mainly European, cultivated in the Mexican gardens.

Mexican Name.	English.	Mexican Name.	English.
Acacia comun.	Acacia.	Dulcamara.	Bitter-sweet.
Acanto.	Thistle.	Encina olorosa.	Oily evergreen oak.
Adelfa.	Rose-bay.	Espino blanco.	Whitethorn.
Ajenjo.	Wormwood.	Espino rosado.	Buckthorn.
Alelí.	Gilliflower.	Floripundo.	Magnolia.
Ambrosía.	Buckthorn.	Geranio olorosa.	Cranesbill.
Anana.	Pineapple.	Helecho.	Fern-filex.
Alhucema.	Lavender.	Heliótropo.	Heliotrope.
Anémona.	Anemones.	Heptáica.	Liverwort.
Ápio.	Celery.	Immortal.	Inmortal.
Argentina.	Satin cinquefoil.	Jacinto.	Hyacinth (four species).
Artemisa.	Artemisia.	Lirio blanco.	Florentine iris.
Azahar de naranjo.	Orange flower.	Lila blanca.	Lilac (white).
Azahar de limon.	Lemon flower.	Madre-selva.	Honeysuckle.
Azahar de lima.	Lime flower.	Margarita.	
Azahar de cidra.	Citron flower.	Magnolia.	Magnolia.
Azahar de toronja.	Shaddoc flower.	Mirto.	Myrtle.
Azahar de Chirimoya	Anona flower.	Narciso.	Daffodil.
Balsamina.	Balsam-apple.	Nardo.	Tuberose.
Betónica.	Betony.	Peonia.	Peony.
Cacaloxochitl.		Reseda.	
Centaura.	Centaury.	Rosas.	Roses (every variety).
Caléndula.	Marigold.	Sardónia.	Crow-foot.
Camelia.	Camelia.	Serpentaria.	Snake-root.
Campanilla.	Bell-flower.	Tomillo.	Thyme.
Capuchina.	Nasturtium.	Toronjil.	Balm.
Clavel rojo.	Pink (red).	Trinitaria.	Pansy.
Clavel blanco.	Pink (white).	Tuberosa.	Tuberose.
Clavellina.	Mignonette.	Tulipan.	Tulip.
Chícharo or Guisante	Sweet-pea.	Valeriana.	Valerian.
Dálias.	Dahlias.	Violetas.	Violets (all species).

Among them any flowers which embellish the meads and adorn the gardens of Mexico, says the old historian Clavigero, there are some worthy to be mentioned, either from their singular beauty, or their extraordinary forms.

The *Floripundo* merits the first mention, on account of its size, a beautiful white and odoriferous flower, more than eight inches in length and four in diameter. The *Jollocxochitl*, or flower-of-the-heart, is so fragrant that a single one will fill a whole house with its perfume, while the *Coatzontecoxochitl*, or viper's-head, is of incomparable beauty, and highly esteemed by the Mexicans. The *Oceloxochitl*, or tiger-flower, is so called, because spotted like an ocelot, or tiger; the *Cacaloxochitl*, or raven-flower, (the frangipanni), is very odorous, and is made by the Spaniards into conserves; the *Chempoalxochitl*, is the Indian carnation; the *Xiloxochitl*, a beautiful red flower, and the *Macphalxochitl*, or flower-of-the-hand, a most wonderful

production of nature, in the form of a bird's foot, or the hand of an ape. Not a flower blossoms in Mexico that has not an expressive Aztec name, so well versed were the aborigines of that country in the lore of the field and forest.

"Besides these, and innumerable other flowers," adds the historian, "which the ancient Mexicans delighted to cultivate, the land has been enriched with all those which could be transported from Asia and Europe, until the gardens of Mexico rival those of the Old World."

The pastures are abundant and nutritious, and in several states, as in Sonora, Tamaulipas and Lower California, are fragrant with aromatic herbs, like the sweet marjoram and wild thyme.

Fournier, the eminent botanist, finds in Mexico six hundred and thirty-eight varieties of grasses, three hundred and seventy-six of which, it is said, occur in no other land. Of the rest, eighty-two are found in the United States.

AZTEC AGRICULTURE,

At the time Mexico was invaded by the Spaniards, was in an advanced state, even if we compare it with European progress at the opening of the fifteenth century.

When, according to tradition, the Toltecs were banished from their native country, — or that in which they had sojourned for a long period, — and began their journey southward, they tarried at certain places, and there erected houses and planted cotton and corn; and in this manner leisurely approached Tula, where they remained many years, and eventually reached the valley of Mexico. The Aztecs, upon their arrival, or at a period subsequent, incorporated into their nation the remains of the scattered Toltec tribes, and gained thereby many arts and processes hitherto unknown to them. It was probably after the founding of the Aztec capital, Tenochtitlan, in 1325, that they made use of the *chinampas*, or floating gardens, upon which they planted vegetables necessary for their subsistence.

In preparing their land for cultivation, they first cut down the trees, and then burned it over, the ashes being, so far as is known, their only fertilizer. They enclosed their fields with walls and hedges of agave, and labored industriously to keep them in good condition. Their implements were few, and of the rudest description, being but a wooden shovel or spade, the *coatl*, or hoe, of copper, with a handle of wood, and a rude knife or sickle of the same metal. In planting, they made a hole with a sharpened stick, into which the seed was dropped, and covered with the foot. They carefully protected their fields from birds and predatory animals, by means of watchmen, and, especially in the *tierra caliente*, — practised irrigation in a most economical and scientific manner. They built granaries and stored vast quantities of corn — their only cereal; besides which, they had beans, *chile*, magueys, pumpkins and gourds, and later, cacao, vanilla, and many other native fruits. While providing themselves with the necessaries of life, they did not neglect the cultivation of those plants usually regarded by the savage as useless: their gardens of flowers and odoriferous plants were the wonder of the Spaniards when they first entered the valley. The markets of Mexico, as the Aztecs became firmly fixed in their valley fortress, and as they extended their conquests to the coasts on either side, became filled with the vegetable production of every zone and climate; as attested by the letters of Cortés, Bernal Diaz, and others.

The Mexicans then had long since passed the dividing line between the rude nomads of the plains and forest, and the patient cultivator of the soil; they were even more than mere herdsmen, had passed beyond the pastoral period, and were firmly fixed in possession of estates. Without beasts of burden, they were obliged to train the lower classes to carry heavy loads, and labor in the field was performed solely by human hands. But they, — even in their necessitous condition, — were more advanced than many nations of Europe, and even than the English, if we may believe one of the earliest of our books on agriculture.

The range of food-plants on the table-land of Mexico was not broad, but the people utilized them all. Maize was their chief reliance, growing everywhere from coast to mountain-top; and from it they prepared a variety of foods and drinks perfectly astonishing. They clothed themselves with cotton, from the tropic coast-belt, drank beverages prepared from the cacao (*chocolatl*), the maguey and the maize, and drew upon the sylvan fauna and flora for a multitude of simple articles of sustenance. While they had no fowls, except the wild turkeys and curassows (*crax alector*), they obtained eggs from iguanas, turtles, alligators, and some native birds; and meat from quail, rabbits, deer, *alcos*, or native dogs, peccaries, and other animals indigenous to the country. Agriculture proper, however, in its most restricted sense, — the tillage of the soil, — furnished them with their principal aliment. Aside from tradition, and the records of the picture-writings, — which some may question, and we will not call in testimony, — "ineffaceable evidence of a high state of agriculture exists all over Mexico." One may still find, on the savannas of the coast, as they extend up towards the hills and mountains, "traces of a dense agricultural population; of tribes who had passed away long before the Spanish invasion; for, when these plains are laid bare by fire, it will be seen that the entire region was formed into terraces, by means of walls of masonry, with every precaution against the ravages of the tropical rains. . . . All is now concealed by trees, or tall grass; for miles, scarcely a hut is built, where formerly every foot of land was as diligently cultivated as the banks of the Nile, or the Euphrates, in Solomon's time."

"In the other Hemisphere," says the historian Herrera, in the quaint English version of his time, "there were no dogs, asses, sheep, goats, swine, cats, horses, mules, camels, nor elephants; no oranges, lemons, pomegranates, figs, quince, olives, melons, vines, sugar, wheat, nor rice."

By indicating what the aboriginal inhabitants of America lacked, we may be better able to show what was accomplished after the Europeans had gained possession of the country. Every variety of soil and climate having been bestowed upon it, a natural dwelling-place could always be found for whatever fruit or vegetable was introduced from the Old World.

Hernando Cortés wrote to his sovereign, shortly after the siege of Mexico: "All the plants of Spain thrive admirably in this land. We shall not proceed here as we have done in the isles (West Indies), where we have neglected cultivation, and destroyed the inhabitants." Unfortunately, both for Spain and for Mexico, the home-government pursued a policy, after the subjugation of New Spain, diametrically opposite to that suggested and advised by Cortés and the conquerors.

Of little avail were the entreaties of those who had the prosperity of Mexico at heart, and would have brought out the latent energies of her people. They were not allowed to encourage any industries which would conflict with those of Spain

REAL ESTATE IN MEXICO.

It is as true now as twenty years ago, when Sartorius (a German by birth, a keen observer, and long a resident in Mexico), wrote, that the soil of the Republic of Mexico is, for the most part, in the hands of private individuals and corporations; comparatively little is State property, and this little chiefly in the northern districts. Mexico is a conquered country; the original conquerors selected large estates, and were confirmed in the possession of the same by the Spanish government. The original Indian possessors were included in these grants, as serfs; but they were suffered to retain the soil they cultivated, on paying rent. Subsequently a law was promulgated for the protection of the Indians, that the country round each village, to the distance of six hundred yards, measured from the church, should belong to the community. Many villages and towns which had fought as allies against the Aztecs, not only retained their lands, but were even rewarded with the confiscated lands of their neighbors. Churches and convents were endowed with landed estates, and whenever a spot was discovered without an owner, some Spanish official, soldier, or priest, soon managed to obtain it as a fief. The soil being thus partitioned out, it was natural for large estates to become the property of individuals, especially in the northern, less populous provinces, where the conquest gradually proceeded, and the leaders had leisure to acquire the conquered lands for themselves and their followers. The large estates in Mexico are *haciendas*, which, when intended for agriculture, are called *haciendas de labor*, and when for cattle-breeding, *haciendas de ganado.*

The agriculturists and graziers of Mexico belong by descent to the Creoles and Mestizos, and are its most independent class. "They are," continues Sartorius, "conservative, attached to old habits, to patriarchal customs, to discipline and order in the house, religious, honest, and hospitable, but at the same time frugal."

SEED-TIME AND HARVEST.

In some states, as Vera Cruz, Oaxaca, Tabasco, Guerrero, Jalisco, and Mexico, three harvests may be annually secured. The yield varies from a return of forty for one planted, to three hundred; but the general return is about a hundred and fifty for one. In the hot climate of the coast and in some portions of the interior seeds and grains may be kept from eight to ten months, in the temperate region from eighteen months to two years, and in the cold regions as long as four years.

The rainy season commences early in June, and lasts until the autumnal equinox. Frosts are frequent on the northern frontier in winter, and in other localities of great elevation. Hailstorms also occur in the colder regions, but not with frequency. Throughout the country it is more necessary to guard against drouth than excessive wet. Irrigation is needed, and largely used when practicable, all over the country. Should the rainy season be greatly retarded, the crops suffer, and are sometimes entirely lost. The hour of work in the hot climates are, for a day laborer, from five in the morning to eleven, and from three in the afternoon till seven; in the temperate and cold regions they are from morning to evening twilight, with two to three hours' rest for breakfast and dinner; on some haciendas the laborers have daily tasks which they complete at their discretion. The workmen are paid weekly, every Saturday evening or Sunday morning. The men received, before the

late advent of railways raised the wages in the districts through which they run, from twenty-five to thirty-seven cents (with or without rations); and boys from twelve to eighteen. Women are rarely, though occasionally, employed in the fields, but prepare and carry to the laborers their meals. A ration (*racion*) consists of corn (*maiz*), beans (*frijoles*), salt, and *chile*, or red pepper, in sufficient quantity.

AGRICULTURE ON THE TABLE-LAND.

Sartorius, to whom we again refer as the best authority on the agriculture of Mexico, and one commended by Mexicans of high standing, has the following on this subject: The immense plateaux extending from the sixteenth to the thirtieth degrees of north latitude, which are from five thousand to eight thousand feet above the sea, produce nowhere tropical plants. The plants of the Old World are here met with, and maize, maguey, and the cactus for breeding the cochineal.

The husbandmen either resort to artificial irrigation or sow during the rainy season. In the beautiful valleys of Chiapes and Oaxaca, Perote, Puebla, Atlisco, Tlascala, Mexico, and Toluca, in the rich lowlands of Rio Grande de Santiago, and in many plains of the northern States, the rivers and brooks, sometimes even the lakes, are employed for artificial irrigation; and, when this does not suffice, by means of immense dikes elevated valleys have been converted into lakes, which fill during the rainy season, and supply the fields afterwards with necessary moisture. Many haciendas are furnished with expensive aqueducts which frequently convey the water for miles. All these estates grow wheat and maize, but on a larger scale than most European estates. The soil is plowed for wheat in October, the grain is sowed in November, and the water admitted to the furrows. The seed soon shoots up, is watered twice more during the winter, twice in spring, and ripens in May, or June.

The threshing is performed by means of horses or mules, treading out the grain, in the immediate vicinity of the fields. Many of the estates have their own mills, and send the flour to the towns, where the consumption of fine bread is greater in proportion than in Europe, while the native population of the villages consume chiefly maize bread, *tortilla*. Rye is cultivated here and there, oats nowhere, but barley to a considerable extent. Various sorts of maize are grown, which are, doubtless, varieties of one species, but must be selected according to climate and soil. If, as is occasionally the case, the early crop of maize suffers from the cold, barley is planted in the rainy season to make up for it, by which means the forage keeps down in price; for barley, with the exception of the small quantity lately required for brewing (now rapidly increasing) is used exclusively for feeding. Of the summer plants grown on the estates none are so universal as beans, which are in great request throughout the country. To these may be added horse beans, lentils, pistachios, chile (*capsicum annum*), batate or sweet potato, and occasionally rape and the potato. Vine cultivation is increasing in the north. The plateaux are rich in numerous species of cactus, which nature produces in the strangest forms.

The soil is rarely manured, the mineral components being such that their decomposition by air and water causes extraordinary fertility, and is constantly renewed. Many districts have been sown every year for centuries with maize, a plant that exhausts the soil more than any other, and still one constantly sees rich crops. If we regard the plants of Tlascala, Cholula, Toluca, and others, we find the soil covered with decomposed volcanic matter, or ashes and lava, which by gradual de-

composition maintain its fertility. In many districts less favored by nature, the soil is lightly manured by flocks of sheep and goats. The manure from the stables of horses and mules is heaped up in the yard as rubbish, and in autumn burnt. Only horses and mules, such as are required for immediate use, are kept in stables, while horned cattle never have shelter. Their forage is almost always dry chopped straw, mixed with maize or barley, while the oxen sometimes get maize straw, and in the rainy season green fodder, besides the grass of the pasture, which is insufficient during the working season. With rare exceptions, oxen are used for ploughing; large estates often require two hundred yoke or more. The plow is still the ancient Roman one used in Spain, which merely furrows the soil, instead of turning it up. The harrow is not much used, a thorn-bush replacing it.

It is only during the maize harvest that the Indian women are actively employed in the field, it being considered more as a holiday, as all wish to be in at the *viuda* (the widow), the last ear that comes from the field. A tall stalk with the finest fruit is selected, ornamented with ribbons and plumes, and conveyed in triumphant procession to the master's house, as an indication of the harvest being completed. A dance, or at least some bottles of brandy, reward the attention of the servants. On all the haciendas the work is performed by day laborers, who live on the estate, and serve voluntarily. They are not boarded, but receive their pay in money, and usually every week a ration of maize and pulse. Should they be hindered from working by sickness, or if the master makes special advances for weddings, christenings, or burials, they are forced to incur debt, and are naturally obliged to work it off. The wages on the plateaux, about two *reales*, or twenty-five cents, are doubled and trebled on the coast. During harvest-time laborers are procured from the Indian villages, who come for a week or fortnight, with their provisions and tools, and are usually conducted by a *capitan*, appointed by the village alcade. These people are willing, moderate, and enduring, but are only to be obtained when they have finished harvesting in their own little plantations. The land belonging to most of the haciendas is too extensive for the proprietor to cultivate even the fourth part of it. He therefore devotes the remainder of it to cattle-breeding, or lets it out to farmers.

IN THE TIERRA CALIENTE, OR HOT COAST REGION.

"Agriculture on the table-lands," says the observant writer last quoted, and whom we shall follow a little farther, "has its prescribed limits, according to the soil and the climate. The European may easily fancy himself in his own country; the cornfields, the meadows, and market gardens, even the orchards, are those of temperate zones. On crossing the mountain ridges which encircle the plateaux, be it to the east or west, the whole physiognomy of the country assumes a decided tropical appearance; the heights are wooded; instead of the fine short Alpine grass, the plains are covered with taller grasses; the ground is overshadowed with creeping plants and brushwood; and agriculture obtains produce of a very different kind. The estates of the east coast differ from those of the west coast. In the latter all the perennial plants require artificial irrigation, whilst the coast lands of the Gulf, near the mountains, have rain throughout the year. Maize, *frijoles*, tobacco, rice, cotton, and indigo are cultivated as summer plants, that is to say, at the commencement of the rainy season, and require no further irrigation; the sugar-cane, coffee, cocoa, vanilla, rice, manioc, and the banana, must have irrigable land on the west side; on the east side in a few places only.

"On the table-land the soil must be plowed for sowing; in the *tierra caliente* the plow is met with on the larger plantations only. The rancheros plant their summer produce mostly in forest land, where no plow can be employed. In the dry season they hew down all the trees and bushes. The wood is allowed to dry for some months, and then set fire to. When the rain sets in, the grain is sown without the soil being turned up. With an iron-pointed stick holes are bored in the ground, and the seed-corn cast in. Maize, beans, rice, cotton, etc., are sown in this manner, and tobacco transplanted. In a few days the young seed shoots up, and with it innumerable weeds. Cotton thrives there only where the winter months are without rain, especially on the southern and ocean coasts, and on the west side of the Cordilleras to the height of three thousand feet. On the east side the winter in the neighborhood of the mountains is too damp. The cotton is spoiled by dew and rain, in consequence of which it is planted in the hot coast regions only.

"The indolence of the inhabitants is wonderful. A few dozen bananas, a small field with manioc and maize, afford nourishment without much labor. The coast rivers abound in excellent fish and turtle, and there are whole forests of palms affording palm-wine and oil. The small planter, or ranchero, of the warmer districts, besides his maize field, has usually some plots of land with beans, chile, tomatoes, yams, and bananas, which furnish him with a quantity of nourishment The edible arum root bears from ten to fifteen pounds' weight of bulbs to each plant, the yam (*dioscorea*) develops monstrous roots weighing from fifty to eighty pounds, the *batata*, or sweet potato, produces its meally bulb three or four months after being planted, and the manioc (*Jatropha manihot*) gives a quantity of excellent starch, while the bananas and plantain yield more fruit (upon which alone the family could subsist) than they can consume.

"The rancheros of the *tierra caliente* live mostly in frail huts of bamboo and reeds, open for the passage of cool breezes, and shaded by bananas and plantains. Beneath the roof swings a hammock, and very few, indeed, are the domestic utensils. They can seldom read or write. When they intend marrying, they must know part of the Catechism by heart, therefore, when the time comes, be crammed up to the mark. They are not fond of hard work, nor have they any need of it, as they have plenty to live upon if they devote but a few hours a day to agricultural labor. They are good hunters, know the haunts of the deer and wild boar, and track the wild turkey. The men tan the deer-skins remarkably well, dye and make their clothes of them; the women spin and weave cotton. During half the year there is little or nothing to be done in the field. The chase is then attended to, or the fibres of the long-leaved *bromelia pita*, or of the maguey, are prepared, cordage and ropes made of it, and sent to market. In other localities they collect copal, storax, and Peruvian balsam, the fruits of the oil-palm, pimento or vanilla. Many days, however, are passed extended on the mat, playing the guitar, sleeping, or staring up at the blue sky." To counterbalance the many advantages of life in the *tierra caliente*, there are the many dangers attending it, especially to the unacclimated, resulting from noxious disease peculiar to the tropic coast, the poisonous insects and reptiles, and the very monotony of an isolated existence.

HORSE AND CATTLE RAISING.

It is not owing solely to the fact that the large haciendas are too vast to cultivate, that so many Mexicans devote themselves to the herdsman's life. It is a pursuit of

which they are fond, a love for which has been inherited, both by the Spaniard and the Mexican of the mixed race. The Indian rarely takes to the raising of cattle, horses, or sheep, both on account of poverty and natural disinclination. Cattle thrive best in the *tierra caliente*, while horses, sheep, and goats rarely do their best except in the upland region. In the case of the latter, the great number of prickly plants become entangled in their wool, and during the rainy season the humidity is such that the foot-rot and other diseases carry them off. The cattle are left entirely to nature, and seek their own pasture during the rainy season on the savannas, during the dry months in the shady forest. The different pasture-grounds of a hacienda are called *potreros*, and are under the care of herdsmen (*vaqueros*), each man having usually from five hundred to eight hundred head to look after. Although wild, the cattle do not shun man, and are easily attracted to the *vaquero* by means of salt, a bag of which he always carries at his saddle-bow.

All the Mexican cowherds are mounted, partly because it is impossible to survey such extensive tracts on foot, partly because they often require a fleet horse to catch stragglers. Frequently the animals injure themselves, the bulls fight, a sharp thorn, or a beast of prey (jaguar, puma, or wolf) wounds them, and, as in the hot regions, the flesh-fly lays its eggs in the wound, the assistance of the herdsman is indispensable. He therefore constantly has his lasso with him, made of leather or the fibres of the maguey. At full gallop he pursues the flying animal, casts the noose about its neck, quickly turns his horse's head, and drags the struggling prisoner to the nearest tree, to which it is soon bound. In a moment, he has dismounted, has cast a second noose about the hind-feet, and with one jerk the heaviest beast is extended on the ground; the hind and fore feet are quickly tied together, and now the surgical operation can be performed at leisure. The *vaquero* endures the hardest toil for very little pay, living a life of constant fatigue, and is in the saddle by night and by day. He always lives in the middle of his pasture-grounds, near a watering-place, and has a strong inclosure of stone or logs (*corral*), into which the herd can be driven. The calves are taken thither when some days old, and tied up under a shed. Instinct leads the cows twice a day to the enclosure to give their young the required nourishment. Part of the milk is withdrawn, and this is done more for the sake of taming both cow and calf, and to accustom them to man, than for the sake of the milk. After two months the calf is set at liberty, but it now remains, especially if it be driven once a week with the herd to receive a little salt.

Many estates there are, throughout Mexico, that possess from ten thousand to twenty thousand head of cattle, and it frequently happens that, owing to the difficulty of obtaining herdsmen, whole herds run wild, and are not readily caught. It is indispensable in the raising of cattle that they be driven into corral at least once a year, and must often be treated to salt. The yearly branding of calves and cattle is called *herradero*, and is made an important festival. The great profit is in the sale of the oxen and old cows to the butchers, as a great quantity of meat is consumed in the country. The ranchero usually slaughters his fat cattle himself, and makes *sesina* or *tasajo* of the meat. This is done by cutting all the flesh into strips about four inches broad and two thick and several feet in length. It is then well sprinkled with fine salt, and with the juice of lemons, the whole mass being wrapped up over night in the hide. The next day, as soon as the sun is high enough, the strips are hung upon lines, and thoroughly dried by the air and sun. The process is finished in some days, and the meat is then packed in bales, and sent to market.

Vast quantities of this dried meat are consumed, for it is savory, keeps well, and is soon prepared, it being only necessary to lay a piece on the coals and roast it.

In the shrubless plains of Zacateces, San Luis Potosi, Durango, Coahuila, and Chihuahua, continues the authority upon whom we are mainly depending for this information, the soil is everywhere poorly manured. In the rainy season, from June till October, these plains are covered with tall grass, but in December all begins to fade, the pools in the hollow dry up, and in the warmest months, April and May, water is frequently not met with for days. In these deserts the horses and mules are chiefly bred. The haciendas are seldom sufficiently furnished with water, and are forced to have recourse to tanks, in which it is collected, or to bore deep wells.

It is infinitely more difficult to breed horses than cattle. The latter are impelled by instinct to seek for watering-places, which they find in the deepest ravines, often wandering several leagues a day to a river or lake, and always returning before night to the favorite pasture. The horses, on the contrary, must be driven every day to water, as they would otherwise die of thirst. The mares always keep together in troops of forty or sixty (in *atajos*) being led by a stallion, who often trots round the troop to hurry those that lag behind, and who fights furiously with any other stallion that may chance to approach.

The herdsmen of these troops are the boldest horsemen in existence. They lead a poor life, as their salary rarely exceeds five dollars a month; they live in wretched huts, and seldom behold a village, or enjoy the pleasure of society. Half their time is passed in the saddle, and their delight is to race with other herdsmen, to cast the lasso, and to mount the untamed horses and mules.

Good stallions are dear, and command high prices. Mules are bred on the northern plateaux, and require more attention than horses. Four-year fillies are bought up from the pasture at from eight to ten dollars each, mules from twenty-five to thirty dollars. The large estates have often from eight thousand to ten thousand horses and mules, and usually effect their sales in winter, in the larger towns.

Sheep-breeding is carried on, in most districts, less for the wool than for the tallow and flesh. The race is bad, and the wool inferior, although the extensive dry pastures, the mountain-ridges covered with aromatic herbs, and the equable climate, would be in the highest degree favorable to an improved breed. From egotism and petty jealousy, the Spaniards never introduced the Merino breed to the colonies. It is on record, however, that Cortez was the first to do this very thing, after he had secured the estate and marquisate of Oaxaca. Just as they prohibited the culture of the vine, of olives, and mulberries in Mexico, in order to retain for the mother-country the trade in wine, oil, and silk, so were they determined to keep the trade in fine cloth in their own hands, without reflecting that the traffic in fine wool would have brought them in a far more considerable profit. In recent years, however, some of the more enterprising Mexicans have procured superior ewes and rams from Saxony and the Pyrenees, and the effect is already becoming apparent. Towards the end of the rainy season the flocks are collected, the fat wethers and old ewes selected and slaughtered, and the flesh stewed down in a range of large coppers. The firm tallow, in masses of about two hundred pounds, is packed in sheep skins, and forwarded to the cities and mining districts, where it meets with a ready sale. The slaughtering period (*matanza*) usually lasts a month, and is a holiday for the shepherds who have only to perform the slaughtering, skinning, and cutting up, receiving as extra wages the heads and intestines of the victims, and fatten themselves

and families for a long time with heads and livers. The cooked meat from which the fat has been extracted (*carne de chito*) lies there in complete mountains after a *matanza;* it is bought up by dealers, and sold in the villages.

Goats and swine are also reared in great numbers, both, also, for the sake of their fat. The steep, craggy hills and mountains, covered with thorns and creeping-plants, afford them a perfect paradise, where they are fattened with greater celerity than in the slums of great cities. The milk either of goat or cow is not utilized to any extent in Mexico; as a consequence, butter is scarce, and cheese mostly imported. The chief profit of goats is in the tallow, a fat he-goat yielding about twelve, and a she-goat ten pounds of tallow. In Jalisco and Michoacan many estates fatten a thousand swine annually, and sell them in droves to the soap-boilers and ham-salters of Toluca and Perote.

IRRIGATION.

By the establishing of a school of agriculture, and by the encouraging of farmers to procure the best breeds of cattle, etc., the "Department of Public Works," in Mexico, has in mind the thorough cultivation of Mexican soil, by the best and most improved processes.

It offers some inducements to immigrants, but prefers those of the Latin race, as more readily assimilating with the native population. But its attention should rather be directed towards a system of irrigation, which, by a network of arteries, or by means of artesian wells, should feed the vast deserted tracks with water, — that life-blood of agriculture. The native Indians once possessed extensive irrigating works, but they were destroyed by the Spaniards, who, in addition to this, eventually deprived the high valleys and plateaux of their forest coverings; and the soil, thus exposed to a tropical sun, without protection of undergrowth or timber, was carried away by descending torrents. This is the condition of the great Valley of Mexico, whose surrounding hills are almost entirely denuded of soil as well as of vegetation. The great success resulting from irrigation, in California, New Mexico, and other portions of the lost territory of Mexico, should remind the Mexicans of the great prestige of their ancestors, and incite them to the re-building of ancient *acequias* and canals, under the care of the State.

"If all the country," says Señor Cubas, "were populated, even in proportion to Guanajuato, the census of the Republic would reach 58,000,000, and then agricultural products would be so much greater that they would constitute an element of enormous wealth." Within the territory, at present, there are more than 5,700 haciendas, and 13,800 ranchos; the value of landed property, based simply on its valuation for taxes, was, in 1876, $176,397,300, without taking into account streams, grazing-lands, orchards, and other rural property.

These estimates are taken from the great government report of Mexico, — *Estadistica de la Republica Mexicana,* — which has been the basis of the preceding article, and which we have every reason to believe approximately accurate. From the same source we also obtain the

AGRICULTURAL PRODUCTIONS FOR THE YEAR 1880.

	KILOGRAMS.	VALUE.
Chickling vetch	12,650,460	$543,283
Cotton	25,177,760	6,605,831
Beneseed (*sesamum orientale*)	3,050,140	153,643
Canary seed	1,121,375	57,410
Anise	1,175,950	127,268
Indigo	192,246	358,002
Rice	15,166,588	1,248,244
Sugar	70,090,550	8,761,317
Cacao	1,443,002	1,140,050
Coffee	7,961,808	2,060,382
Barley	232,334,023	4,403,742
Cumin seed	102,337	23,500
Capsicum	54,128,140	4,196,482
Beans	210,188,526	8,406,211
Chick peas	11,485,422	471,075
Beans (garden)	15,722,561	477,610
Sisal hemp	40,080,000	3,352,000
Aloe fibre (*ixtle*)	2,231,890	154,053
Lentil	2,102,625	83,043
Maize	5,309,563,939	112,164,424
Potatoes	10,557,738	457,592
Straw	196,245,600	1,962,879
Tobacco	7,504,990	2,006,153
Wheat	338,704,093	17,436,345
Vanilla	55,118	651,958
Sarsaparilla	488,022	149,489
Total	6,569,524,903	$177,451,986

ANNUAL MOVEMENT OF AGRICULTURAL INDUSTRIES.

Olive oil	24,815	$27,629
Rapeseed oil	434,400	278,292
Beneseed oil	216,300	156,277
Linseed oil	608,798	317,734
Brandy	531,576	114,453
Rum	19,317,608	2,052,150
Beer	10,058,636	768,703
Flour	124,057,653	13,463,833
Chocolate	671,278	731,367
Sacks, ropes, etc.	835,277	222,702
Various articles	1,868,048	433,526
Maguey liquor	9,016,000	1,176,000
Maguey wine	5,152,764	570,646
Straw and palm-leaf hats and other fabrics	745,449	370,730
Ordinary pulque	76,430,097	323,232
Fine pulque	100,213,127	3,935,995
Common pulque	10,511,073	330,301
White wine	2,212,209	1,154,196
Red wine	3,529,718	1,508,475
Various liquors	2,144,255	941,021
Coco wine	131,985	34,341
Palm wine	589,467	51,258
Total	369,300,533	$28,962,861

SOME SPECIAL PRODUCTS.

"The merciful hand of Providence," says Lemprière ("Notes on Mexico," 1862), "has bestowed on the Mexicans a magnificent land, abounding in resources of all kinds, — a land where none ought to be poor, and where misery ought to be unknown, — a land whose products and riches of every kind are abundant, and as varied as they are rich. It is a country endowed to profusion with every gift that man can desire or envy; all the metals from gold to lead; every sort of climate from perpetual snow to tropical heat, and inconceivable fertility."

In order to indicate the vast range of food and industrial plants found in Mexico, the writer has selected some of the more important, — mainly tropical productions, — which are presented as worthy of attention. They are arranged in alphabetical order: —

Arrowroot, from both species, *Maranta arundinacea*, and *Tacca pinnatifida*, finds in certain sections of Mexico, a soil and climate adapted to its successful production. The first-mentioned species, a native of South America, may have been cultivated by the aborigines of Central America. In the West Indies, in some islands, great attention is paid to its cultivation, with good results. Although not an object of much attention in Mexico, it should form an important article of export, and is herewith recommended to the agriculturists of the *tierra caliente*.

Banana and *Plantain*, *Musa sapientum* and *Musa paradisiaca*. — Everywhere in the hot coast region, and on the lower borders of "the temperate land," wherever cultivation is carried on, may be seen the banana and its sister-plant, the plantain. The first, sweet, luscious, and equally good raw or cooked, is not, perhaps, more valuable than the second, which forms the tropical aborigines' staple article of diet. There is little reason to doubt that the plantain is indigenous to tropical America, and was cultivated by the aboriginal inhabitants long before the coming of Columbus. The many varieties of the banana are the result of long cultivation, and the successful introduction into America of plants from Africa and China. Regarding its productiveness, we may repeat that oft-quoted statement of Humboldt, that thirty-three pounds of wheat and ninety-nine pounds of potatoes, require the same space of ground to grow upon, as will produce four thousand pounds of bananas. From a year to eighteen months is required to ripen the fruit from the first planting, but as suckers spring up all about the original stock, there is afterwards no labor, except that of gathering the immense bunches of fruit, some of which attain to eighty pounds weight. These plants, like the agave and coco-palm, are useful to man in many ways; for besides producing delicious fruit, they furnish material, from stalk and leaves, for paper, cordage, etc.

It is said that the first banana was brought into America by a Dominican, in 1516, from the Canaries to Haiti, from whence it was transplanted to the Continent. The name *Platano*, of the Spanish, is supposed to be derived from *Palan*, its most ancient name; *Banana*, the French, from its native Guinea appellation, and *Musa*, the Italian, is taken from the Arabic.

Barley, Spanish *cebada*, introduced by the Spaniards, growing in the cold region, or *tierra fria*, to a higher altitude than maize, though now used principally as fodder, in a green state, it will undoubtedly attain to great importance in the brewing industries of the Republic, and as an article of food. The estimated value of its production in 1880, was above $400,000, constantly increasing. This most

ancient of all grains, and the most hardy, which has been found in the lake-dwellings of Switzerland, in deposits belonging to the stone-period, was not in cultivation (so far as is known), among the Aztecs.

Beans and Chile. — Mexico has not a monopoly of these products, though their consumption is enormous, the first (*frijoles*) constituting the chief aliment of the poorer classes, next to corn, and the latter, *chile* (*Capsicum annum*), an invariable accompaniment. Of the first, Mexico is estimated to have produced, in 1880, over 200 kilograms, worth $8,406,211; and of chile, $4,196,482.

Cacao, Theobroma cacao. — The tree producing the *cacao*, or chocolate-bean, flourishes in the humid climate of the *tierra caliente*, especially in the State of Tabasco, and produces an important article of export. The production in 1879, based on information received by the bureau of statistics in Mexico, was of the value of over a million dollars. The tree, which requires shade as well as moisture, in its early years, yields fruit at about the same age as the orange. Its cultivation is simple, and the preparation of the seed for export, requires little labor, though watchful care is necessary.

Cactaceæ. — As Mexico belongs to the botanical region of the cacti and peppers, it is not strange that we find here the cactus family flourishing in greatest vigor. Of the five hundred species found in America, Mexico has her full share, and they form, sometimes, the only vegetation of certain vast plains, which without them would be level wastes, without an object to relieve the eye. Some of them, as the *Cerei*, rise to the height of sixty feet, their straight, rigid, and spiny trunks supporting great branches like candelabra, whence their name, candelabra cacti; others creep along the ground. The great, globular echinocacti frequently attain to a weight of two hundred pounds. All produce brilliant flowers; all are covered with spines, and are strangely grotesque in shape. The cochineal cactus (described in "Travels in Mexico," p. 529) was formerly of great value; but, since the discovery of analine dyes, the culture of cochineal has almost entirely ceased. Besides the edible fruits yielded by several species, as the *opuntia*, the *nopal*, etc., the *cactaceæ* minister to man in many indirect ways. The nopal figures prominently in Mexican history, for it was upon a cactus (nopal), that the Aztecs beheld their traditional eagle perched, when they at last reached Tenochtitlan, and it may be seen emblazoned on the national banner of the Mexicans, and stamped on all their coins. The giant Betahaya supplies in the north the place of the *organo*, or organ cactus in the south.

Cassava (*Jatropha manihot* and *Jatropha janipha*), *mandioca*, or *manioc*, a plant of tropical America long in use by the native inhabitants. Of these two species one, *Jatropha manihot*, is a deadly poison if eaten in the green state, but if the juice is evaporated by exposure to the sun, or artificial heat, may be eaten with impunity. The tubers require a dry soil not much elevated, and ripen in about eight months from time of planting, which is done by cuttings. The cassava, or native bread, is prepared by peeling off the dark outer rind, grinding the roots after a thorough washing, and baking the "farine" in thin cakes over a hot fire. Tapioca is prepared from it; the tuber is rich in starch.

Chirimoya (*Anona tripetala*), an American fruit, said to surpass in flavor any grown in Europe. A native of Peru, but grown in Mexico, attaining to large size. This fruit is heart-shaped, the rind green, covered with small tubercles, and inclosing a snow-white, juicy pulp, filled with black kernels. One writer calls it a "masterpiece of nature;" another declares that its taste is quite incomparable. Both fruit and blossoms exhale a most delightful odor.

Coca (the *Erythroxylon coca*), a narcotic and stimulant plant, the leaves of which are used by the natives of Brazil, Bolivia, and Peru. Its home is in the sultry valleys of the eastern slopes of the Peruvian and Bolivian Andes. The shrub bears a foliage of lustrous green and white flowers ripening into small scarlet berries. When the leaves are brittle enough to break upon being bent, they are stripped from the plant, dried in the sun, and packed in sacks. Coca lessens the desire for food, and bestows upon the person using it in moderate quantities great powers of endurance. Especially is it valuable in the ascent of great elevations, preventing the difficulty of respiration. The writer has used it with apparently good effect in an ascent of Popocatapetl, in 1881, when he easily climbed to the peak of that mighty volcano, experiencing but little uneasiness from the rarefaction of the atmosphere. No record exists of its first discovery, but it was in use in the temples of the Incas, when Pizarro invaded Peru, and the priests chewed coca while performing their rites. It is estimated that 30,000,000 pounds of the dried leaf are annually consumed; and it has been suggested that its use be more widely extended as a substitute for tea and coffee. There is no reason why coca should not be successfully grown on the slopes of the Mexican mountains, where climate, altitude, and all the conditions of growth can be found in perfection.

The Coco-palm. — To the dweller in the coast country of Mexico, there is no more valuable product, be it tree or vegetable, than the coco-palm, *cocos nucifera*. There is always danger of confusion in speaking of three totally dissimilar products: the cacao, coca, and cocoa. The true spelling of this word should be without the terminal letter, a. Coco: its Latin name is *cocos*, its Spanish, *coco*, and its French, also. The late Charles Kingsley used this orthography, and there is little doubt that *cocoa* is wrong, and a corruption of cacao, which is the name of the *Theobroma cacao*. In order to avoid confusion, we shall speak of it by its correct appellation, *coco*.

It is ever found growing by the sea, loving salt water and salt sea-breezes more than the perfumed gales from out the mountain valleys.

It may be seen drooping over a beach of golden sand, and forming a living barrier between beach and cultivated land, or dotting the valleys, or standing up lone and ragged upon a wind-swept promontory; but it is almost within sound of the surf-beat of the waves. It may stray away towards the mountains, may climb a few hills, and may shelter a little village of huts beneath the waving crowns of itself and companions at some distance from the sea; but in its luxuriance and beauty and profusion it is only found near the coast. Other palms replace it in the mountains; other palms wander far away, and revel in shade and moisture and cool breezes; but this palm, as if ever mindful of the restless waves that bore its parent nut to these shores, delights to keep them company. And the coco loves man, delighting in the proximity of habitations and cultivated fields. Do you meet with a negro hut, alone or with others clustered about it, no matter how humble, dilapidated, obscure, above it droops the feathery crown of a palm, its leaves caressing it, its nuts hanging in abundance ready to drop at the will of the owner.

Broad valleys stretch along the shore, extending far back into the hills, one waving sea of yellow cane, with no object to relieve the billowy plain but the coco-palm and its more aspiring brother, the towering palmiste. About the sugar-house and the dwelling of the owner and the overseer, it is scattered in picturesque groups. The coco is to the tropics what the pine is to the North, the elm to New England, the magnolia to the South.

Coffee. — First found in the forests of Abyssinia, beneath the tropic sun of Africa, coffee was not known to the world beyond till about four hundred years ago. Its cultivation was then confined to a small Arabian province, but its high value induced the Dutch to introduce it into Java, in 1690, and as a rare plant into the botanical gardens of Amsterdam. The New World obtained its supply from a single plant, which a French naval officer carried to Martinique, in the West Indies, in 1720, depriving himself of water, when parching with thirst, that the tender shoot might survive. From this one tree, it is said, all the American tropical colonies obtained their seed, which has multiplied to such an extent that Brazil, the West Indies, and Mexico supply us with as much as Java and Ceylon. These are at present the great coffee countries, the product of Mocha being small in quantity.

It is at an elevation of about four thousand feet that the coffee best thrives, for here it gets shade and moisture, — which the lowlands cannot invariably supply, — and a temperature changing but slightly from year to year. When a grove is started in the primitive forest, many of the large trees are left standing to give the required shade; and when commenced on the low lands where there are no trees, broad-leaved plants, like the banana, are planted by its side to protect from the sun. The tree naturally attains a height of about twenty feet, but in the plantations is pruned down, forming with its straight, horizontal branches a beautiful dome-shaped mass of green. The leaves are broad and glossy green, sometimes concealing the "berries," or fruit, which cluster along the slender twigs and branches. The coffee is shaped like a small bean, and two of these beans are found side by side, adhering by their flat surface, enclosed in a pulp covered by an outside skin, forming a berry the size of a cherry. This is at first green, but ripens into a bright red when it is gathered.

A coffee-plantation in these upland valleys is one of the most beautiful things out of doors. Wide straight paths are opened through it, above which are the dark-green coffee-trees gleaming with berries, or filling the air with perfumed gales from clouds of snowy blossoms.

If there is one production over another that has especial value in Mexico, it is the coffee. Nowhere in the United States can it be successfully raised, there being no suitable combination of soil, climate, and *altitude*, for its perfect growth. The range of the coffee-plant extends only between the isothermals of 25° north and 30° south of the equator, and it cannot be successfully grown in places where the temperature is ever below 55°. Hence this leaves the United States out in the cold, and gives, in the Western Hemisphere, Mexico, the West Indies, and a great portion of South America, exclusive control of coffee-cultivation.

"When grown at the extremes of climate, it is small, generally much lighter, and the actual number of berries is far less than that grown in a genial climate. Experience has proved that from latitute 6° to 12° an elevation of from three thousand to four thousand feet is the most suited, whilst beyond this, five hundred feet of elevation should be allowed for every degree of latitude." Difference in locality of production has little to do with the flavor of coffee, notwithstanding a general belief to the contrary. In Mexico, for instance, the coffee of Colima and Michoacan is declared to surpass that of Cordova and Tabasco; but this superiority, if it exists, is owing to better preparation for the market, or curing, and perhaps to a more thorough cultivation. The quantity of rain, says one writer, is found to exercise a material effect upon the quality of the crop, and a dry climate produces a better flavored and more "colory" bean than that where excessive moisture prevails.

The coffee-tree, says the same authority, flourishes in hilly districts, where its roots can be kept dry, while its leaves are refreshed with frequent showers.

"Rocky ground, with rich, decomposed mould in the fissures, agrees best with it. Though it would grow to the height of fifteen or twenty feet, yet it is usually kept down by pruning to that of five feet, for increasing its productiveness, as well as for the convenience of cropping. It begins to yield the third year, but is not generally in full bearing until the fifth. In coffee husbandry, the plants should be placed eight feet apart, as the trees throw out extensive horizontal branches." The berry must not be picked till fully ripe, then dried in the sun, with the pulp and parchment attached, then passed between wooden rollers, or brayed in a mortar, to remove the dried envelope, and winnowed.

The coffee-plants should be first started in a nursery, whence they are transplanted to the ground assigned for the grove, and during their early years protected from the heat of the sun by bananas and plantains.

Coffee improves in aroma by keeping, and although it loses in weight, it gains in color, and quality. Most of the Mexican coffee is sold direct from the plantations, and is not allowed to arrive at that perfect state acquired by the "Old Government" Java, which possesses a spicy aroma the light-colored berries do not.

In the opening years of this century, coffee was not very extensively cultivated in Brazil, but that country supplies to the United States the greatest proportion used. "The first cargo of coffee from Brazil entered at the port of Salem, Mass., and consisted of 1,522 bags. In 1871, the United States consumed 316,609,765 pounds of coffee, 244,809,600 pounds of which came from Brazil, 27,776,000 from Java, Sumatra, etc., and but 6,728,165 from Central American, Mexican, and other foreign ports." In 1874, according to the Consular Report, the value of coffee exported from Mexico to the United States was $543,352; the amount of coffee exported from Vera Cruz. to all ports in 1876, was $1,146,845. For the year ending 1880, the total value of coffee export from Mexico, was $2,060,382. To show the great value of the coffee crop to us, and to illustrate the growth of this special industry, the following figures are appended, obtained from the United States consulate in Vera Cruz. Total amount of coffee exported from Mexico to the United States only, from March 31, 1876, to March 31, 1881: —

Year ending March 31, 1877	$660,685 82
Year ending March 31, 1878	1,320,612 58
Year ending March 31, 1879	1,064,862 17
Year ending March 31, 1880	1,490,171 87
Year ending March 31, 1881	1,289,716 16

All the coast states of Southern Mexico, on both the Gulf and Pacific, have excellent soil and climate for the growing of coffee; but the most accessible are the Eastern, and the coffee region of Vera Cruz is the best known, while portions of Colima and Michoacan may contain the most favored combinations for success.

Coffee will certainly form the most remunerative of Mexico's agricultural products, as there is a vast area especially adapted to its culture, which lies adjacent to ports connected by short steam-lines with the United States, and penetrated by the great railroads running southward.

Cotton. — Spanish *Algodon*, from Arabic *Alqoton*, indigenous plant of Mexico, found there by the Spaniards. Indians clothed with cotton garments were first seen by Columbus, near the mainland, off the east coast of Yucatan, in 1502, nearly two thousand years after the first mention of cotton fibre by Herodotus. Traditions are not lacking as to the ancient use of cotton by the Toltecs and the Aztecs, the date even of the adoption by the latter tribe of cotton garments in place of those of skin, being entered in their annals. As to the Toltecs, it was entered in their sacred book that Quetzalcoatl, god of the air, grew cotton of all colors in his gardens, and taught them its many uses. Cotton garments, quilted armor of cotton, and beautiful mantles were woven by the Indians of the plateaux from this fibre. The breastplates of cotton were proof against Indian arrows, and were finally adopted by the conquerors themselves, while many articles of apparel were often woven of a fineness and almost lustre of silk. In cotton and cacao seeds the inhabitants of the lowlands, such as had not gold and precious stones, paid their tribute to the Aztec rulers. Throughout the Republic of Mexico, there were, even as at the present day, primitive looms, and the manufacture of cotton goods was among the first industries, in point of time, as it is now in importance, in that country.

The original home of cotton being in the tropical zone, no one can say that this is not another plant native to the soil of Mexico, and which, like maize, may have started from this point, and have been carried north and south. Although it is within the century past that cotton has acquired importance in the manufactures of the world, yet we know that the aboriginal inhabitants of tropical America, the more civilized of them, were acquainted with its uses at least five hundred years ago.

It is one of those plants, says Humboldt, of which the cultivation was as ancient among the Aztecs as that of the maize and the maguey. Cotton thrives only where the winter months are without rain, says Sartorius. The districts of Tlacotalpam, Cuzamalopan, and Tustla, in the State of Vera Cruz, and the coast of Yucatan, produce the best cotton on the east side. It is cultivated in only twelve States of the Republic, and the amount produced is not sufficient for home consumption, large quantities being imported from the United States. There is little doubt that vast tracts of uncultivated land exist which could be made to yield bountiful crops of cotton, such as the extensive plains of the south of Michoacan, the district of Mina, in Guerrero, the savannas of Vera Cruz, the extraordinarily fertile country about the laguna of Tlahualila, and the so-called desert region of Chihuahua. Every year increases the importance of cotton-raising in Mexico, especially in view of the fact that vast tracts of land hitherto inaccessible, and rendered unsafe through the presence of hostile Indians, are being opened to immigration by the railroads. Regarding the prospect of profitable results from engaging in cotton-raising, it would be difficult to advise, since skill, experience, and capital are required in this industry; but there is certainly a large demand for cotton, which it will take our railroads yet some years to satisfy.

Yucatan, Tabasco, Chiapas, Vera Cruz, and Durango are the principal cotton-growing states. To these Consul-General Strother, in his official report, adds Guerrero, Colima, Oaxaca, Chihuahua, Sinaloa, Sonora, Jalisco, Michoacan, and Coahuila.

The annual production of Coahuila he estimates at 3,000,000 pounds. "In the 'Laguna Country' cotton is perennial, and does not require to be planted oftener than once in ten years." This district, containing about 1,200,000 acres, lies partly in Coahuila and partly in Durango, is of extraordinary fertility, and well adapted to

cotton, but is very little cultivated, and the cotton product is diminishing yearly. Durango's cotton crop he estimates at 4,000,000 pounds yearly, that of Sinaloa at 1,700,000 and of Sonora at 1,000,000 pounds. The cotton-belt of Mexico is not so well-defined as that of the United States, depending more upon altitude than latitude; but it is not so broad that cotton will ever become an important article of export. In fact, the best goods manufactured for Mexico are from cotton of the United States, imported at Vera Cruz from New Orleans, and, in some instances, transported on mule-back hundreds of miles into the interior.

And this is notwithstanding the enormous yield, in 1880, estimated at 25,177,760 kilograms, valued at $6,605,831.

Henequen, or *Sisal Hemp* (*Agave Sisalensis.*[1]) — From an official report published in Merida, capital of Yucatan, in 1876, it appears that the peninsula produced, in that year, fibre to the amount of 22,000,000 pounds, the largest part of which (about 18,000,000) was exported in the shape of hemp to New York, London, and New Orleans, and the rest shipped manufactured to Cuba and the Mexican ports. Taking one and a quarter pound of fibre as the average yearly production of each plant, it was estimated that there was at that time more than 18,000,000 plants under cultivation, keeping in operation over 420 scraping-wheels, moved by 229 steam-engines, with a total of 1,733 horse-power, and 30 wheels moved by animal power. Each wheel cleans daily, on an average, 300 pounds of fibre, working but half the year.

"For some time after the cultivation of hemp — henequen — was seriously undertaken by the planters of Yucatan (notwithstanding the invention of the 'fibre-cleaner,' and the cheapness of wages for laborers that obtained), the merchants of that section encountered many obstacles in introducing the staple in the markets of the world. "For the numberless farms of Russia still produced their vast quantities of that hemp from which is manufactured the stout cordage so highly esteemed by the mariners of the civilized world, while on the arid plains of India the Manila fibre, so highly rated for its flexibility and utility in the manufacture of rope for the running rigging of ships, flourished in luxuriant abundance, and to-day is the greatest rival of the Southern henequen.

"But in 1854 the war waged by France, England, and Sardinia against the empire of Russia terminated for some time the traffic in hemp, so important to that empire. The merchants and factors of Yucatan took advantage of this event to introduce their staple into the markets of Europe. It was utilized by the English and French in the manufacture of cordage and ropes, nor was it long before the discovery was made that the proportion of one-fourth Manila fibre with three-fourths henequen made excellent rope, sufficiently flexible for all practicable purposes, but at the same time considerably cheaper than cordage composed of Manila alone. Thus a great impetus was given to the culture of henequen in Yucatan. Thousands of acres of stony land, so sterile as to unfit it for the cultivation of corn or vegetables, were immediately utilized in the culture of Yucatan's only staple. Men who were looked upon as the unfortunate owners of leagues of desert wastes, by the planting of the henequen, in the course of six or seven years became wealthy personages, for each plant on their farms yielded them an income of ten cents per year, even when the price of the precious fibre ruled low. For some years after the Russian war the price of henequen averaged about seven cents per pound, while the principal

[1] See "Travels in Mexico," chap. iv.

markets where it was consumed were New York and Liverpool, Antwerp and Hamburg. But in 1872 the price of the staple fell, and fluttered from five cents to six and six and a quarter cents per pound. In 1878 the price dropped as low as four and a half cents per pound, and then the unhappy planters lamented their hard fate in the depreciation of a staple that paid them for its cultivation some ten or twelve per cent at this low price clear of all expenses on the value of their farms, as assessed by them when the price ruled as high as eight and nine cents per pound, and when they were gaining at least twenty-five per cent on the capital invested.

"Even now, when the price is from five and a half to six cents per pound, the cultivation of henequen is a most profitable investment for capital. Labor rules at from six to eight dollars per month, while the system of peonage that obtains in Yucatan is still more oppressive and more degrading even than in Mexico."

From statistics furnished the writer by United States Consul Aymé, at Merida, Yucatan, it will be seen that the henequen industry is assuming vast and unexpected proportions: —

Values to all places: 1880, $1,805,848.18; 1881, $2,774,166.88, increase over previous year, $969,318.70; 1882, $2,729,556.07, decrease from previous year, $44,610.81.

Bales to the United States: 1880, 85,434; 1881, 116,209; 1882, 109,867.

Bales to Europe: 1880, 11,917; 1881, 23,424; 1882, 25,216.

Three thousand bales were burned at Progreso in 1881, of which 2,481 were destined for the United States, and 519 for Europe. The noticeable features are, for three years: a great increase in exportations in 1881 over 1880; a considerable decrease in 1882 from 1881. But while the percentage of increase in number of bales in 1881 was about 40 per cent for the United States, the European imports were over 100 per cent greater, and in 1882 the whole decrease fell on the United States, while Europe increased her imports, still further lowering our amount.

Indigo, which was once a special product of Mexican soil, has declined in importance, like cochineal, until it is no longer profitable to engage in its cultivation. The total amount for 1880 is given at $358,000.

Cochineal, which was formerly raised and exported to the amount of over $2,000,000 annually, has no longer a value that will tempt the cultivator in Mexico other than the patient Indian, descendant of a long line of cochineal raisers, to attempt its difficult, though fascinating, culture. These two industries are very evidently relegated to the things of the past.

Maize and *Wheat*. — Indian corn, or maize, was probably the only cereal originally possessed by the Mexicans, but all the grains of Europe have been successfully introduced. Maize grows everywhere from coast to mountain-top; wheat and barley only in the colder regions: but all flourish here, and yield abundant harvests.

Columbus, in his first voyage, in 1492, discovered corn in use by the Indians of Cuba, and afterwards by those of Haiti. "Among the trophies of the New World that this great navigator laid at the feet of his sovereigns, on returning from this remarkable voyage to the unknown country, were a few ears of *maize*, or 'Indian corn.' Neglected were they amongst the mass of rich plunder — gold, gems, and strange copper-skinned captives — that greeted the eyes of Ferdinand and Isabella; but the golden ears were of far more value to the world than all the treasure that subsequently flowed into their coffers from New Spain."

The spread of the wonderful grain was rapid, and that which had hitherto constituted the chief food of the American Indian was soon all over Europe, Asia, and

Africa. A thousand years before our country acquired a name, the Indians of Mexico cultivated this precious cereal. At the present day, even, it is almost their sole support.

On the discovery of America by Europeans, says Humboldt, the *zea maiz* (*tlaolli* in the Aztec, *mahiz* in the Haytian) was cultivated from the most southern part of Chili to Pennsylvania (much farther north even than that).

Maize, or Indian corn, is certainly of tropical birth. Its broad, clinging leaves, its tall, tassel-crowned form, and luxuriant growth, all proclaim it as a native of the tropics. The home of the maize is undoubtedly the Mexican plateau. Either there or on the equally elevated plains of Peru, Indian corn had its birth. There it finds the necessary union of hot "growing" days with cool, moist nights.

In a journey through the Indian hill-towns of Southern Mexico, the writer has ridden for days through successive valleys filled with maize, where the villages were entirely hidden in vast fields, and where the great stalks with their waving tassels, like the feathered crests of warriors of old, reached the height of fifteen feet. Humboldt esteemed the cerealia of Mexico far ahead of that of Europe in point of productiveness, and Mr. Ward, British minister to Mexico, sixty years ago, wrote: "There are few parts, either of the *tierra caliente* or of the table-land, in which maize is not cultivated with success. In the low hot grounds upon the coast, and on the slope of the cordillera, its growth is more colossal than on the table-land; but even there, at 7,000 and 8,000 feet above the level of the sea, its fecundity is such as will hardly be credited in Europe."

The estimated product of maize in Mexico for the year ending 1880 was 5,309,563,939 kilograms; in value, $112,164,424.

The first wheat in Mexico was accidentally introduced, it is believed, in some rice brought with the stores of the Spanish army, and was first planted before 1530. From that humble beginning, the wheat crop of Mexico has steadily increased, until at the present day, this cereal finds congenial surroundings everywhere on the plateaus. The Mexican wheat, according to Humboldt, "is of the very best quality, and may be compared with the finest Andalusian grain." Regarding the yield, he further says, speaking of the principal great valleys of Mexico, "At Cholula, the common harvest is from 30 to 40, but frequently exceeds 70 to 80, for one. In the Valley of Mexico maize yields 200, and wheat 18 or 20 fold. In the northern part of Mexico, he estimated the return as lower; yet where irrigation is practised, as in California and Arizona, former provinces of New Spain, or Mexico, the result has been astonishing.

The estimated production for 1880, throughout Mexico, was 338,704,093 kilograms, valued at $17,436,345. Fine flour is ground in Mexico, but not equal to the American, which sells largely, notwithstanding an almost prohibitory duty.

The straw of the various grains was worth, it is said, above $1,500,000.

The wheat is threshed in the primitive manner of the ancient Egyptians, with horses to tread it out, on a floor of pounded earth.

Rice, *sarsaparilla*, and *vanilla*. — The rice product of Mexico amounted to above $1,200,000 in 1880; yet the extent to which it is cultivated is not great, owing to the unhealthiness of localities where it flourishes.

Two wild vines, both of which are indigenous to Mexico, the sarsaparilla and the vanilla, contribute to the enrichment of the natives of the hot country. The vanilla, with the rich, aromatic fruitage, and spicy blossoms, is found growing in

the tropical forests of Vera Cruz and Tobasco. It is carefully cherished, requiring skill and acquaintance with its habits for successful results, and its fruit yields above half a million dollars annual returns.

Sugar cane. — Three varieties of cane are planted in the Republic, known as the Castilian, Havana, and Otaheite. The first is not so full of juice as the others, but is more abundant in saccharine matter; the mixture of the three produces the best results in the manufacture of the sugar. The *tierras calientes* are especially adapted for the cultivation of the cane, and the plantations and the amount of improved machinery are increasing yearly. The methods of culture, and the processes for crushing the cane, and crystallization of the juice, are the same as those followed in Cuba and Porto Rico. The plantations are of great area, some producing from 2,000,000 to 3,000,000 pounds of sugar annually. The largest are situated in the states of Morelos, Jalisco, Vera Cruz, Oaxaca, Puebla and Yucatan.

Sugar-cane was an importation of the Spaniards, the Mexican-Indians extracting sweets only from the native honey, from the agave, which juice they called *metl*, and from the saccharine pith of the maize. It was brought into Mexico from the Canary Islands, by way of the West Indies; for the Spaniards planted cane in San Domingo as far back as 1520.

As early as 1553, sugar was exported from Mexico, from the ports of Vera Cruz and Acapulco, into Spain and Peru. In the early part of this century, according to Humboldt, several million of pounds were annually exported at Vera Cruz. He also estimated the rich soil of the State of Vera Cruz as being capable of producing twice the product of cane per acre as that of Cuba; and Ward (another authority), pronounced the same state able to supply sugar to all Europe. Yet, in spite of these predictions, Mexico has never realized the hopes of her friends in this direction. Either the native Indian element has developed a liking for sweets that their early task-masters would not allow them previously to indulge, when Mexico exported sugar to other Spanish colonies; or the foreign element aids largely in its consumption; for sugar does not figure largely in the list of exports. Indeed, there is not enough produced for home-consumption. And it may be added that, as Mexico's population develops a taste for the luxuries of life, as it is constantly augmented by accessions from the United States and Europe, the demand for sugar will so increase that it will be imported to a considerable extent. Protective duties now serve to keep out American sugar (especially the refined grades), which sells in Mexico at high prices. Perhaps the radical reason for the inability of Mexico's sugar-plantations to keep pace with the demand is, that the area suitable for cane-cultivation is necessarily restricted. The plantations are not all of them situated in the unhealthy hot lands, as cane can be raised in the *tierra templada*, as high as four thousand feet, and where the only fevers are the relatively mild intermittents; in truth, the finest and most beautiful haciendas that the writer can call to mind, many of which he visited, are in a region very salubrious, though of course, hot. Those of Oaxaca, which are quite productive, are in a valley quite temperate in character, and near the healthful capital of the state. But the superficial configuration of the Mexican territory, notably rough and mountainous, forbids any extent of fertile valleys, in the rich mould of which alone the cane will grow to perfection. Mexico can, undoubtedly, raise a much greater quantity of sugar than she does now, when settled peace shall have given her planters an opportunity to rebuild mills destroyed by revolutionists, and to bring into cultivation thousands of acres which have been neglected from the same cause.

Another factor in successful cane-raising, which is all-important in Mexico, is water; and unless the present irrigation facilities can be extended in some remarkable manner, the sugar product will never reach a point to admit of exportation to other countries. The estimated yield for 1880, was 70,000,000 kilograms, valued at $8,716,000. Of the 2,019,823,614 pounds of sugar, imported into the United States in the three years ending June 30th, 1880, only 1,792,171 pounds came from Mexico, less than one-tenth of one per cent.[1]

Tobacco. — Indigenous to Mexico at the time the Spaniards first set foot upon its soil, was a plant which has since become famous throughout the world, tobacco, called *yetl* by the Aztecs, and used by them as a mild narcotic. We have only to turn to the history of that country to find that the lords of Montezuma's court, and even the great chieftain himself, used it after their repasts, daintily smoking it through amber tubes, and finding it especially grateful for the midday *siesta*. Mexico may never, perhaps, take rank with Cuba as a tobacco-producing country, but within her borders, especially on the confines of the *tierra caliente* of the east coast, there is a soil particularly adapted to the growth of the plant, and an atmosphere and temperature favorable for ripening and curing it. The tobacco of Vera Cruz is rapidly winning its way to favor, and when sufficient care shall have been exercised in the manufacture of Mexican cigars, they will, in all probability, compete successfully with the Havanas. The region about Cordova has long been celebrated for its tobacco, which has yielded a large revenue to viceroys and other rulers of Mexico for two or three centuries. The production of 1880 is given as 7,504,990 kilograms, having a value in Mexico of $2,000,000.

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1 See "Commerce between the United States and Mexico," Washington, 1884.

MINERAL REGIONS OF MEXICO.

"Mexico," says Lyell, "originally consisted of granitic ranges, with intervening valleys, subsequently filled up to the level of the plateaus by subterranean eruptions, as igneous rocks of every geologic epoch to a large extent form the superstructure of the central plateau. The most elevated regions are composed, especially the high ranges, of plutonic and volcanic rocks, although a great portion of the plateau is metamorphic, and contains the greatest variety of ores." Says another authority: "A line drawn from the capital to Guanajuato, and thence northward to the southwestern point of Chihuahua, and southward to Oaxaca, thus cutting the main axis of upheaval at an angle of 45°, will intersect probably the richest known argentiferous region in the whole world!"

In a general way it may be said that a metalliferous vein runs through the entire cordillera of Mexico, extending from the mines of the Sierra Madre in Sonora, — in the far northwest, — to the gold-deposits of Oaxaca, in the extreme south. The mineral districts most distinguished for their productions of silver and gold are those of Guanajuato, Zacatecas, Fresnillo, Real del Monte, Pachuca, Catorce, Tasco, and Oaxaca.

As the relative importance of mines is largely due to their proximity to great centres of population, the mines of Pachuca, — including those of Real del Monte, Chico, Capula, Santa Rosa, etc., — should first claim attention, being distant from the capital less than seventy miles. This group, in the State of Hidalgo, covers an area of twenty-five kilometres from north to south, and thirty-three from east to west. A second cluster is that of the district of Tasco, and those of Zacualpan, Sultepec, Angangeo, Tlalpujahua, and Zimapan. These groups, with those of Oaxaca, describe a circuit round about the City of Mexico, though open towards the east with a radius of about two hundred kilometres.

The districts of Guanajuato and Zacatecas form two groups, important for their numerous and industrious population. An offshoot from the main cordillera is the district of Catorce, north of San Luis Potosi. The states of Sonora, Oaxaca, Michoacan, Chihuahua, and Guerrero, abound not only in the precious metals, but in copper, iron, lead, zinc, etc. The most notable of these are the hills of iron in Durango and Oaxaca, and the copper found in Michoacan, and Chihuahua. Humboldt divided the Mexican mines into eight groups: the first, and most considerable, includes the almost contiguous districts of Guanajuato, San Luis Potosi, Catorce, Fresnillo, and Sombrerete; those to the west of Durango and Sinaloa form the second; the third group comprehends the mines of Chihuahua, and is the most northern; northwest of Mexico City lies the Real del Monte or Pachuca; those of Zimapan or el Doctor, the fifth; Bolanos, in Guadelajara, is the central point of the sixth; Tasco, of the seventh, and the mines of Oaxaca the eighth.

That part of the Mexican mountains containing the greatest quantity of silver lies between the parallels of 21° and 24° 30′ north latitude.

"It is remarkable," says Humboldt, (then, of course, being ignorant of the vast deposits of Nevada and Arizona), "that the metallic wealth of Mexico and Peru should be placed at an almost equal distance, in either hemisphere, from the equator."

HISTORY OF MEXICAN MINES.

"The mountains of Anahuac," wrote the celebrated historian Clavigero, a century ago, "abound in ores of every kind of metal. The Mexicans found gold in the countries of the Cohuixcas, the Miztecs, the Zapotecs and several others. They gathered it chiefly in grains amongst the sands of the rivers, and the above mentioned people paid a certain quantity in tribute to the crown of Mexico. Silver was dug out of the mines of Tlachco and Tzompanco. Of copper they had two sorts, — one hard, which they used instead of iron to make axes, mattocks, and other instruments of war and agriculture; the other flexible for the making of basins and other vessels. This metal abounded formerly in the provinces of Zacatollan and the Cohuixchas; at present it is found in the kingdom of Michoacan.

They dug tin from the mines of Tlachco, and lead from the mines of Izmiquilpan, a place in the country of the Otomies. Of tin they made money, and they sold lead in the market; there were likewise mines of iron in Tlascála, in Tlachco (Tlasco) and other places; but they either did not find out these mines, — or, at least did not know how to benefit themselves by the discovery. Mines of quicksilver they had in Chilapan, and in many places mines of sulphur, alum, vitriol, cinnabar, ochre, and a white earth strongly resembling white lead. Of amber and asphaltum, there was, and still is, a great abundance on both coasts, and they were both paid in tribute to the king of Mexico from many places of the empire. With respect to precious stones, there were, and still are, diamonds, though few in number; amethysts, cats-eyes, turquoises, cornelians, and some green stones, resembling emeralds (*Chalchiuitls*); and of all these stones the Miztecs, Zapotecs, and Cohuixcas, in whose mountains they were found, paid a tribute to the king. The mountains which lie on the coast of the Gulf of Mexico, between the port of Vera Cruz and the river Coatzacoalco, namely, those of Chinantla, furnished them with crystal. There were quarries of jasper, and marble of different colors, in the mountains of Calpolalpan, to the east of Mexico, in the *Monte de las Cruces*, and in the Zapotec couutry; of alabaster (Mexican onyx) in Tecalco (now Tecale) State of Puebla, and in the country of the Miztecs; of *tezontli*, in the vale of Mexico itself, and in many other places of the empire. There are, besides, mountains of loadstone (magnetic iron), of the *Quitzalitztli*, or nephritic stone; the Mexicans formed various and curious figures; *Chimaltizatl*, which is a kind of talc, on calcination, gives a fine plaster, which the Mexicans used to whiten their paintings; the *Mezcuitlatl* was the opal, very abundant. But no stone was more common with the Mexicans, than the *itztli*, or obsidian, of which they made mirrors, knives, etc."

That the ancient Toltecs and Aztecs obtained gold and silver, not only from the beds of mountain torrents and the auriferous sands of the coast streams, but from shafts and galleries sunk at great expense of time and toil, we have abundant proof. Like the native of Peru, they worked mines that dated their origin from a period so remote that no man knew when they were begun. The abundance of gold and silver vessels and bars of the precious metals at the time of the arrival of the Spaniards proves the above statement, aside from their own historic records. They possessed, besides gems, also cinnabar, lead, tin, and copper. The southern provinces paid tribute, not only in the peculiar products of their fields and forests, but in golden grains, as found in the rivers, and cast into bars, and wonderfully wrought ornaments.

Fortunately for the seeker after early statistics, we have an account of the ancient sources of wealth of the Aztecs in the letters of the conqueror himself; for Cortés wrote an explicit account of them to his sovereign. After getting Montezuma into his power, in the year 1520, he obtained from the Aztec ruler a list of all his mines. The account cannot be better rendered than in his own words: "When I discovered that Montezuma was fully devoted to your Highness, I requested him that, in order to enable me to render a complete account to your Majesty of the productions of the country, he would point out to me the mines from which gold was obtained, to which he consented with the greatest readiness. He immediately sent for several of his public servants, and assigned them to four provinces, two to each, in which he said the gold was obtained, and he asked me to allow some of the Spaniards to go with them that they might observe the manner in which gold was procured, and I accordingly deputed two Spaniards for the same number of his own men. One party of them went to a province called Cuzula, eighty leagues from the great city of Temixtitlan (Mexico), whose inhabitants are vassals of Montezuma, where they were shown three rivers, from all of which they brought me specimens of gold of a good quality, though procured with little trouble, and without any other instruments than those used by the Indians. . . . Another party of our envoys went to a province called Malinaltebeque, which is seventy leagues from the great city, but more towards the seacoast. They brought me specimens of gold from a great river that passes through it. The other party visited a region beyond this river, inhabited by a people speaking a different language from those of Culua (Mexico), and whose territory is situated on a lofty and rough mountainous range, with a population inured to war, who fight with spears of twenty-five to thirty palms' length; he is independent of Montezuma. . . . . He would not admit the subjects of Montezuma, but allowed the Spaniards to enter, and showed them seven or eight mines, from which they said gold was procured; and in their presence some of the Indians got out a quantity of the precious metal, of which specimens were brought to me. . . . . The other party of envoys visited a province called Tuchitebeque, on the same route, towards the sea, twelve leagues from the province of Malinaltebeque, where, I have already said, gold was found, and where they were shown two other streams, from which they obtained gold."

The first silver sent from the mines of New Spain was obtained from those of Tasco, discovered in the year 1522. These mines, with those of Pachuca, are considered the oldest in Mexico, some of them having been long worked by the Indians at the time of the arrival of the Spaniards. The amount of gold and silver obtained from Montezuma and sent to Spain is estimated at $7,000,000. This includes the household treasures of Axayacatl, his royal father, the accumulation, probably, of many years.

"The working of the mines of Zacatecas," says Humboldt, "followed closely after; one, the vein of San Barnabe, was begun in 1540, but twenty-eight years after the death of Montezuma. The principal vein of Guanajuato (*la Veta Madre*) was discovered somewhat later, in April, 1558. The dates of discovery of the most important Mexican veins, are as follows: Parral, in 1600; Cieneguilla, 1608; Guazapares, 1628; Urique, 1630; Batopilas, 1632; Cusihuiriachic, 1666; Chihuahuilla, 1671; Santa Eulalia, 1704; Topago, 1750; San Joaquin, 1774; Umapa, 1778; El Refugio, 1810; Jesus Maria, 1821; Palmares, 1824; Morelos, 1826;

Setentrian, 1829; Batougachic, 1839; Santo Domingo, 1867; Guadaloupe, 1869; Zapuri, 1873.

There were, by the calculation of Humboldt, at the opening of this century, five hundred places (*reales*, or *realitos*), celebrated for their mines, comprehending nearly five thousand mines (*minas*), or separate excavations. The principal *reales* were: — Guanaxuato, in the Intendency of the same name; Catorce, San Luis Potosi; Zacatecas, Zacatecas; Real del Monte, Mexico; Bolanos, Guadalaxara; Guarisamey, Durango; Sombrerete, Zacatecas; Tasco, Mexico; Batopilas, Chihuahua; Zimiapan, Mexico; Fresnillo, Zacatecas; Ramos, San Luis Potosi; Parral, Chihuahua.

With the increasing prosperity of the mines the *reales* were converted into pueblos or villages, giving an impulse to agriculture in the surrounding country, and to commerce, many of them finally becoming prosperous cities, which either drove away the Indians, or reduced them to submission and to a civilized life. Such is the history of the foundation of Guanajuato, whose real was established in 1554, obtained the title of town in 1619, and of city the eighth of September, 1741.

The natural mineral wealth of Guanajuato attracted attention from the very first. The first worked silver vein was that of San Bernabe, which afterwards belonged to the famous mine of La Luz. This vein, we are assured, was discovered by an *arriero* (muleteer), who travelled between Zacatecas and Mexico. Later, they worked Mellado and Rayas, and in sinking shafts in 1558, discovered the famous *Veta Madre*, — or Mother Vein, — which, since that epoch, has been attacked at various points, calling into existence the numerous mines of Valenciana, Tepeyac, Cata, Santa Anna, Fraustos, Santa Anita, and others, whose riches have attracted the attention of the old continent, even by the vast amount of its argentiferous products. The mines have suffered various vicissitudes; they have fallen away in production since the time when Humboldt published a statement of their almost fabulous yield. The mine of Guadalupe, known as the Cata, has been one of the richest and most famous of those in the district of Guanajuato. At the end of the eighteenth century it belonged to the heirs of the Marquis of San Clemente. Since the year 1758, it has been filled with water to such an extent that it could not be worked. If the mine could be effectually drained, it would also be possible to work the mine of San Lorenzo, an old and very rich one; and it is the general belief that when the *tiro principal*, — great main shaft, — shall be completed and these mines thoroughly drained, there will soon result such a bonanza as will revive the ancient splendors of Guanajuato.

"We may make," says a competent authority, "three periods in the history of Mexican silver mining: the Aztec period, which terminated at the arrival of the Spaniards, who inaugurated the second, which extended until Mexican independence, with continually increasing products. The Spaniards invented amalgamation by the *patio* process. Then came above twenty years of confusion, when little was done; but when the Republic had fairly got under way, and the country was, in some measure, open to foreigners, Europe, especially England, in hot haste to take advantage of the opportunity, sent over engineers and machinery and great sums of money, much of which was quite wasted, to the hopeless ruin of a great part of the adventurers. The improvements and machinery remained, however, but the mines passed into other hands. Of late years the companies have been doing well, and now export nearly as much silver as during the latter years of the Spanish Government."

The English minister, Ward, in writing of the mines of the table-land, said: — . . "Fortunately there is no reason whatever to apprehend the approach of that scarcity of mineral productions with which many think Mexico is menaced. Hitherto, at least (1827), every step that has been taken in exploring the country, has led to fresh indications of wealth, which in the north appears to be really inexhaustible." (This was written twenty years before the discovery of gold in California, and when the territory comprising Arizona, Nevada, etc., was a howling wilderness.)

"Mining in Mexico has hitherto (true yet) been confined to a comparatively narrow circle; the immense mass of silver which the country has yielded since the conquest has proceeded from a few central spots; yet, if one examine these spots we shall find that three centuries of constant productiveness have not sufficed to exhaust the principal mines originally worked, while by far the largest proportion of the great veins remain unworked in each."

At Sombrerete, the vein of the Pavellon has been worked from the time of the conquest, though it was only in the year 1792 that it produced the famous bonanza. . . . . The mines of Santa Eulalia, in Chihuahua, continued to be equally productive during a period of eighty years, and were only abandoned at last in consequence of the incursions of the Indian tribes. The riches of Real del Monte can hardly be said to have diminished in a term of sixty years, although the difficulty of drainage caused the works there to be suspended. An account of the miners, on oath, in 1801, of the state of the lower levels, when abandoned, shows the richness of the vein to have been unimpaired.

TOTAL PRODUCT OF THE MEXICAN MINES.

A very clear estimate of the precious metals sent from the New to the Old World in the early years of its conquest is given by Humboldt, as follows: From 1492 to 1500, $15,000, gold of Cibao (Hayti), coast of Paria, etc. From 1500 to 1545, annual product $3,000,000: Mexican mines of Tasco, Zultepeque, Pachuca; Peruvian mines of Caxamarca and Cuzco, and the spoils of Tenochtitlan, Choco and Antioquia. From 1545 to 1600, $11,000,000: Zacatecas, Guanajuato, Cerro del Potosi, Peru, etc. From 1600 to 1700, $16,000,000: mines of Potosi getting exhausted, but new ones discovered. From 1700 to 1750, $22,500,000 alluvial deposits of Brazil, Mexican mines of La Biscaina, Sombrerete, and Batopilas. From 1750 to 1800, $35,500,000; last period of splendor of Tasco mine; the Valenciana wrought. The same great authority estimates the total gold and silver sent from America to Europe, — between years 1492 and 1803, — three centuries, — at £1,166,775,322; say in round numbers, $8,250,000,000.

Taking as a basis the estimates of the great Humboldt, the annual average of the Mexican mines between 1690 and 1803 was $12,000,000; and the total product up to 1884 will foot up nearly $4,000,000,000, as follows: —

Between 1521 — 1803 (inclusive)	$2,027,952,000
" 1804 — 1847 "	768,188,420
" 1848 — 1875 "	702,000,000
Product for 1876 (Cubas)	20,000,000
" " 1877 – '78 – '79 (estimated)	75,000,000
" " 1880 (Busto: *Estadistica*)	29,713,355
" " 1881 — 1884 (inclusive: estimated) . . .	100,000,000
	$3,722,853,775

These estimates are, of course, more or less imperfect. No one can doubt the integrity of the great author of Cosmos, who diligently searched the mining records of Mexico, to which he had free access. "But," says an English authority, "during the civil war (which occurred ten years later, and lasted nearly twelve years), the archives, not only of the college of mines (to which Humboldt had access, and by which the produce of each separate district might have been ascertained), but of almost all the mining deputations, were destroyed Even the registers of the sums paid to the *Cajas Provinciales*, — provincial treasuries, — as the 'king's fifth,' have disappeared."

Our authorities, then, from which the foregoing deductions are made are: first, Humboldt (1803), Ward (1827), Brantz Mayor (about 1842), Cubas (1876), Busto, — *Estadistica de la Republica Mexicana* (1880), various Mexican writers scattered throughout the sixty years known as the Revolutionary period, and the *anuarios* (annuals) up to 1884. Ward, the British Minister to Mexico in 1827, thought that Humboldt under-estimated the product of the Mexican mines. He further alludes to the fact that from the mines, throughout the long period when Mexico was in the throes of civil strife, the lower classes drew their entire subsistence, by extracting ore from the upper levels of mines abandoned by their wealthy owners, and thus completing the ruin water had commenced by removing pillars left for support, etc. It is not the author's desire to make out a case either for or against the Republic of Mexico, but it is his wish to clearly present an accurate statement of its resources. It is his opinion that, considering the vast amount that conjecturally has paid no duties; has been smuggled out of the country, and extracted by the thousands of *buscones*, or illegitimate miners, of which no record has been kept, the mines of Mexico have yielded a total product of not less than $4,000,000,000.

In 1876, an American statistician,[1] basing his estimates upon those of Humboldt, and the various official reports of Great Britain and the United States, sums up the total products of gold and silver of the territory formerly known as New Spain, the most valuable portion of which the United States acquired from Mexico, in 1848, as follows: —

Mexico, 1521 — 1804	$2,027,952,000
" 1804 — 1848	768,188,420
" 1848 — 1876	702,000,000
California, 1848 — 1876	1,064,628,502
Nevada, 1848 — 1876	293,233,910
Arizona, 1848 — 1876	7,962,000
New Mexico, 1848 — 1876	6,075,000
Utah, 1848 — 1876	17,472,773
Total of New Spain 1521 — 1876	$4,887,512,605

He further compares the gold and silver product of the world, for about the same period, with that of New Spain, by which it appears that the latter restricted territory produced *thirty-seven per cent* of the whole, during three centuries: — New Spain, $4,888,512,605; the World, $13,111,825,889.

[1] Alex. D. Anderson, in The Silver Country; or, The Great Southwest. New York: 1877.

By a series of comparisons he shows that the greater portion of the world's silver product, of later years, has been obtained from New Spain: — From 1521 to 1804, it yielded 43 per cent of the silver product of the whole world; from 1804 to 1848, 56 per cent; from 1848 to 1868, 50 per cent; and during the year 1875, 75 per cent of the silver product of the whole world.

"The territory acquired by the United States from Mexico, produced," he says, "between 1848 — 1876 *seven-eighths* the total amount of silver and gold of the country, viz: —

Total product of United States	$1,574,045,802
" " " territory acquired from Mexico	1,389,372,185
" " " other States, only	$184,673,617."

RESUMÉ OF MINES AND MINING FOR THE YEAR 1880.

Mineral districts			324
Placers			23
Mines in working	1,247		
" "Denounced"	447		
			1,694
" of silver and gold	332		
" silver	807		
" copper	156		
" lead	143		
" cinnabar	94		
			1,694
Annual production in *cargas* (300 lbs. each)			2,567,306
" " in kilograms of pure metal			843,058,000
Value of total production of the mines			$29,713,355
Number of men employed			102,240
Salaries and wages paid			$8,021,000
Kilograms of pure silver reduced (*patio*)	360,284,317		
" " " " (*tonel*)	24,503,843		
" " " " (lixiviation)	16,077,771		
" " " " (*fuego*)	142,224,667		
		543,120,598	
Number of mints in the Republic			11
Gold coined during year 1879	$622,524.00		
Silver " " " "	21,405,331.00		
Copper " " " "	16,300.00		
		$22,084,155.20	

Kilograms of pure gold (961,131) value of	$618,514.58
" " silver (543,120,598) value of	$21,240,904.59
" " metal (544,081,720) value of	$21,859,419.17
Difference in kilograms between production and coinage,	299,938
" in value " " and "	$7,629,199.80

GOLD.

"Rivers become less auriferous," wrote Humboldt, "in proportion as, in the course of ages, their flow becomes less rapid. A horde of savages who settle in a valley where man has never before penetrated, find grains of gold, accumulated there for thousands of years; while in our day, the most careful washings hardly produce a few particles."

In corroboration of this we may cite the golden streams of Hayti and San Domingo which were so productive in the few years succeeding the discovery of the West Indies, but which now contain nothing of value. Mexican gold, the same great authority states, is for the most part extracted from alluvial ground, by means of washing. These grounds are common in the province of Sonora; a great deal of gold has been collected among the sands of the valley of the Rio Hiaqui (Yaqui). Farther to the north in Pimeria Alta, under the thirty-first degree of latitude, lumps of native gold, *pepitas*, have been found of the weight of from five to six pounds. In these desert regions, the incursions of the Indians, the excessive price of provisions, and the want of the necessary water for working, are all great obstacles to the extraction of gold.

Another part of the Mexican gold is extracted from the veins which traverse the primitive mountains, which are most frequent in Oaxaca (State), either in gneiss or micaceous slate, which last rock is particularly rich in gold. These veins, of which the *gangue* is milk quartz, are more than half a metre in thickness, but their richness is very unequal, as they are frequently "strangled," and the extraction of gold in the mines of Oaxaca is in general by no means considerable. Gold is to be found, either pure or mixed with silver ore, and there is scarcely a single silver mine which does not also contain gold. Native gold is frequently found crystallized in octahedrons, or as laminae, or in a reticulated form, in the silver ores of the mines of Villalpando and Rayas, near Guanajuato; Guarisamay, west of Durango; and Mezquitl, in Guadalajara, which last yields the purest metal.

Among the ancient Aztecs, the Spaniards found a great quantity of ornaments and works in gold, such as a golden disk, as large as a cart wheel, etc. Of presents to royalty, from the *conquistadores* of the New World, probably few have surpassed, in novelty of design, and intrinsic value, that golden culverin sent to the king of Spain by Cortés, in 1523. It was a superbly executed work, and valued at 20,000 ducats. In the great market of ancient Mexico, gold dust was sold in tubes, or quills of aquatic birds, made transparent, so that the size of the golden grains could be seen.

Although long celebrated as the Land of Gold, Mexico has not actually shown any great extent of territory that may be called auriferous. A glittering thread of gold runs, indeed, the entire length of the Sierra Madre, but it is only at rare intervals that it has been taken up and pursued with profit. Placer gold has been discovered in the north, but it is mainly in the south, in Oaxaca, that the ore has of late years been mined. The following list identifies auriferous localities:

NATIVE GOLD. — State of Guerrero, mineral de Tepantitlan; State of Mexico, mineral del Oro; State of Oaxaca, mineral de San Antonio.

AURIFEROUS PLACERS. — Several districts in the states of Chihuahua, Sonora, and Ixtapa in Mexico.

GOLD COMBINED WITH OTHER METALS. — State of Chihuahua: Guadalupe y

Calvo, Guadalupe de los Reyes, Parral; State of Durango: Avino, Basis, Canelas, Comercio, Coneho, Cuencame, Duraznito, El Oro, Gavilanes, Guanacevi, Huahuapan, Inde, Mapimi, Penon Blanco, Picotercot, San Dimas, San Juan de Guadalupe, San Bruno, San Rafael, Santa Rosa, Santiago, Topia, Ventanas; State of Guerrero: mineral de Tasco; State of Guanajuato: The greater part of the mines of silver of the district of Guanajuato contain traces of gold, principally those of Rayas, Monte de San Nicolas, Sirena and el Nayal; State of Hidalgo, Pachuca, Zimapan; State of Jalisco, mineral de Etzatlan; State of Mexico: mineral districts, El Oro, Ixtlahuaca, Sultepec, Temascaltepec; State of Michoacan: minerals of Angangueo and Tlalpujahua; State of Oaxaca, minerals of Ixtlan and Penoles; State of Puebla, mineral de Tetela, del Oro; State of Queretaro, mineral del Doctor; State of San Luis Potosi, mineral of San Pedro; State of Sinaloa: Birimosa, Cajon, Cosala, Fresnos, Limon, San Javier, Tule; State of Sonora: Promontorios, Minas Nuevas; State of Zacatecas, Carcamo, Cedros, Chalchihuites, Fresnillo, Mazapil, Noria, Pico de Freire, Pinos, Zacatecas.

SILVER.

Mexico's greatest mineral wealth, undoubtedly, lies in its vast deposits of silver, as compared with which its treasure of gold is almost insignificant. In our general remarks upon mining, we have described the ancient and modern silver mines, and have related the history of their discovery. It only remains, now, to indicate the districts in which silver is the principal product. For further particulars, the reader is referred to the detailed description of the resources of the states.

NATIVE SILVER, says Humboldt, which is much less abundant in America than is generally supposed, has been found in considerable masses, sometimes weighing more than two hundred kilograms, in the mines of Batopilas. From time to time, he adds, small branches, or cylindrical filaments, of native silver, are discovered in the celebrated vein of Guanajuato; but these masses have never been so considerable as those which were formerly drawn from the mines of Encino, near Pachuca, and Tasco, where native silver is sometimes contained in foliated gypsum. It is now found in certain districts of Batopilas, State of Chihuahua, Guanajuato, Pachuca and Zacatecas; and argentiferous and platiniferous deposits in the district of Jacala, State of Hidalgo, known as Santa Maria de Alamos.

PRINCIPAL SILVER DISTRICTS. — Chihuahua: Batopilas, Batuchique, Candamena, Cusihuiriachi, Guadalupe y Calvo, Guadalupe de los Reyes, Jesus Maria, Morelos, Parral, Santa Eulalia, Toquimbo, Urique, Uruachi, Valle, Zapori.

Durango: Arzati, Avino, Bajada, Basis, Canelas, Coneto, Comercio, Cuencame, Durangal, Duraznito, El Oro, Fresnos, Gavilanes, Guanacevi, Huahuapan, Inde, Mapimi, Metatitos, Mezquital, Parrilla, Penon Blanco, Picoeterco, Pueblo Nuevo, Rodeo, San Dimas, San Juan de Guadalupe, San Lucas, Santiago, Sianori, Tamazula, Tejame, Topia, Ventanas.

Guanajuato: El Nayal, El Nopal, Gilmonene, Jesus Maria, La Joya, Mejiamora, Monte de San Nicolas, Rayas, San Pedro, Santa Lucia, Sirena, Socavon de San Cayetano, Valenciana.

Guerrero: Colorin, Socavon, Tasco, Zarza Nueva.

Hidalgo: Pachuca, Zimapan.

Jalisco: Bramador, Cuale, Etzatlan, Hoztotipaquillo, Huachinango, Ixtlan, La Bautista, La Yesca, San Sebastian, Santo Tomas.

Mexico: Chalchitepec, El Oro, Ixtlahuacan, Sultepec, Temascaltepec, Villa del Valle, Zacoalpan.

Michoacan: Agangueo, Tlalpujahua.

Morelos: San Juan de Dios.

Nueva-Leon: Mienas Viejas, in the district of Villaldama.

Oaxaca: Ixtlan, Penoles, Talca, Totoloapan.

Puebla: Tetela del Oro.

Queretaro: El Doctor.

San Luis Potosi: Bermalejo, Catorce, Charcas, Guadalcazar, Matehuale, San Pedro

Sinaloa: Alisitos, Atotonilco, Bacubirito, Birimoa, Cajon, Calabazas, Cantarranas, Capula, Cosala, Chichi, Fresnos, Fuerte, Joya, Limon, Panuco, San Ignacio, San Javier, San Jose de Gracia, San Lorenzo, San Luis, Santa Cruz, Sarabia, Tigre, Tule, Yedras, Zapote.

Sonora: Aduana, Alamos, Baucari, La Barranca, La Trinidad, Los Bronces, Minas Nuevas, Soyopa, Tesopaco, Zuviate.

Zacatecas: Bolanos, Carcamo, Cedros, Chalchihuites, Fresnillo, Mazapil, Noria, Nieves, Sombrerete, San Juan de Guadalupe, Sierra Hermosa, Pinos, Rio Grande, Teul, Pico de Freire, Zacatecas.

The mineral districts given above are those from which was obtained the silver coined in the mints of the Republic during the fiscal year ending June 30, 1879, a total amount of $22,067,855.

SULPHURET OF SILVER is found in Guanajuato, Pachuca, Zacatecas and in Zaculapan, State of Mexico. Ruby silver in Morelos, State of Chihuahua. Black silver in Chihuahua, Guanajuato and Zacatecas. Argentiferous galenite in the greater part of the mines of the Republic.

QUICKSILVER.

Cinnabar is found in the State of Durango: Pregones and Chiltepi; State of Guerrero: El Puesto, Jalisco; Guadalcazar, San Luis Potosi; El Doctor, Queretaro, and la Trinidad; in the cerro of Tippocanes, State of Zacatecas. Hepatic cinnabar in Guadalupe Atargea, State of Guanajuato. Guadalcazarite in Guadalcazar, State of San Luis Potosi. Onofrita in mine of San Onofre, State of Queretaro. Livingstonite in Huitzuco, State of Guerrero.

By referring to Humboldt, we find that New Spain in 1803 consumed an annual amount of 2,100,212 Troy pounds of mercury. "The court of Madrid, having reserved to itself the exclusive right of selling mercury, both Spanish and foreign, entered in 1784 into a contract with the Emperor of Austria. When the price of mercury has progressively lowered, the working of the mines has gone on increasing. In 1590 a quintal of mercury was sold in Mexico for 187 piastres; but in 1750 the court distributed it to the miners at 82 piastres: in 1777 a royal decree fixed the price of the mercury of Almaden at 41 piastres, 2 reales, and that of Germany at 63 piastres." From an argument by General Rosecrans, before Congress, in December, 1882, it appears, that, during thirty-three years, the quicksilver-mines of California have produced 1,310,095 flasks, or 100,222,267 pounds. California produces half the quicksilver of the world; that of the Old World, from the mines of Austria and Spain, being controlled by the Rothschilds, who, but for the mines of California and Mexico, would seriously retard all mining operations, to which this valued product is essential in the reduction of ores.

IRON.

Meteoric iron is found in the desert of San Carlos, State of Coahuila, and Jiquipilco, State of Mexico. Magnetic iron in "Encarnacion," State of Hidalgo, and in the State of Chihuahua. Red globular iron in Cerro del Mercado, in the State of Durango. Plumbago in the district of Zimapan, State of Hidalgo.

Further allusion to the great mass of iron ore known as *el Cerro del Mercado* will be found under the Mines of Durango. Meteoric masses have been discovered in various portions of Mexico. Says a writer on Mexico: "The 'Arabian Nights' story of the mountain which consisted of a single loadstone finds its literal fulfilment in Mexico. Not far from Huetamo, on the road to the Pacific, there is a conical hill, composed entirely of magnetic iron ore. The blacksmiths in the neighborhood, with no other apparatus than their common forges, make it directly into wrought-iron, which they use for all ordinary purposes."

COPPER, LEAD, SULPHUR, AND VARIOUS MINERALS.

Common pyrites are found in mine of La Mala Noche, Zacatecas. Radiated pyrites in mines of Guanajuato and Zacatecas. Lead in Galena and Zimapan, State of Hidalgo; and Asientos, State of Aguascalientes. Carbonate of lead in mine of San Nicola and Maconi, State of Queretaro; mine Negra in Jacala and Zimapan, State of Hidalgo. Sulphite of copper in Tepezala, State of Aguascalientes. Yellow copper in Santa Clara, State of Michoacan; Santa Rosalia, Chihuahua, and Agua Blanca, Jalisco. Native bismuth, in mine of Orito and in Ojo Caliente, State of Zacatecas. Bismuth silenide in mine of Santa Rosa, State of Guanajuato. Carbonate of bismuth in the Cerros del Desierto, State of San Luis Potosi. Ochre of bismuth in Vizarron, State of Queretaro. Zinc in mines of Tasco, State of Guerrero. Native sulphur in volcano of Popocatepetl; Orizaba, State of Vera Cruz, and Taximaroa, Michoacan.

Regarding the ancient use of copper, Humboldt wrote: "Of all the metals, copper was that which was most commonly employed in the mechanical arts: it supplied the place of iron and steel to a certain extent; and the arms of the Aztecs, axes, chisels, and all their tools, were made of the copper which they extracted from the mountains of Zacotollan and Cohuixco. Several men of great learning, but unacquainted with chemical knowledge, have maintained that the Mexicans and Peruvians possessed a particular secret for tempering copper, and converting it into steel. There is no doubt that the axes, and other Mexican tools, were almost as sharp as steel instruments; but it was by the admixture of *tin*, and not by any tempering, that they acquired this extreme hardness. . . . In several provinces (of Anahuac), pieces of copper to which the form of a T was given, were used as currency. Cortés relates, that having undertaken to found cannons in Mexico, and having despatched emissaries for the discovery of mines of tin and copper, he learned, that, in the environs of Tasco, the natives employed in exchange pieces of melted tin, which were as thin as the smallest coins of Spain." See also the author's text and cuts of ancient copper utensils, in "Travels in Mexico," p. 544.

PRECIOUS STONES, OPALS, ETC.

Rubies are found in the State of Durango. Diamonds in the State of Guerrero and Tonalixco, in the direction of the Sierra de Zongolica. Topazes in the Sierra de Canoas, in the State of San Luis Potosi. Emeralds in Tejupitco, State of Mexico. Garnets in Xalostro, State of Morelos, and in the State of Chihuahua. Fine opals in Esperanza and Amealco, State of Queretaro, and in Real del Monte, State of Hidalgo. Common opals in Zimapan, State of Hidalgo. Stilbite in States of Chihuahua and Guanajuato. Quartzes, agates, carnelians, etc., in Real del Monte, State of Hidalgo, and in the mine of San Rafael, State of San Luis Potosi. Various silicates in Bustamancia and Pachuca, State of Hidalgo. Xonatlacias in Xonotla, State of Puebla.

The richest opaliferous district is in Queretaro, in the environs of the hacienda of Esperanza, ten leagues (twenty-five miles) north-west of San Juan del Rio. This hacienda is surrounded by opal-bearing rocks; even the buildings pertaining to it being erected upon them. The opals of Esperanza were discovered in 1855 by a servant of the place, but were not worked until 1870, when the first mine was opened one league north-east of the hacienda, and called Santa Maria del Iris. Others followed, and now there are ten veins exposed. The rock in which the opals are found is a siliceous porphyry, the banks, or ridges, having a general direction from south-east to north-west, which may be plainly noted in the hill of *Ceja de Leon* — the Lion's Eyebrow. The mine called the Simpatica is the most noted for its great variety of opals, inasmuch as it is called a magazine of all known varieties. In the same morning one can obtain precious opals, *arlequines;* fire-opals, — *girasols de fuegos*, — semi-opals, etc.

The precious opals are found both opaque and transparent, and presenting an infinite play of color, from ruby and metallic lustre, to violet blue, which is considered as a rare and desirable color. The *arlequines* reflect a diversity of colors. The *girasols* display emerald tints upon a basic color of fiery red.

In the neighboring hills are the mines of El Rosario, El Iris, La Peineta, and Providencia. As the opals are encountered disseminated throughout the matrix of porphyry, without any apparent system, their mining consists merely in sinking various wells, or small shafts, on the most likely spots, making use of augers, — *barrenos*, — on account of the hardness of the rock containing the stones. When one of these shafts attains to a sufficient depth, it presents a really marvellous spectacle; the rock glistening with a thousand rays of colored light. The color of the matrix varies from a grayish red to a reddish white, and the difference in color indicates the class of opal it contains. In the first are found the *girasols*, or fire-opals, though mixed with others, similar; but in the white porphyries, as in those of the Cerro of Peineta, are found in profusion cloudy opals as beautiful as those of Hungary and Guatemala.[1]

MARBLE. — Sierra de Puebla; las Aguas and Vizarron, State of Queretaro; and in the States of Guerrero, Guanajuato, Michoacan, Nuevo-Leon, etc.

MEXICAN ONYX. — State of Puebla.

GYPSUM. — In Tamazula; State of Jalisco.

GRANITE. — State of Oaxaca; Ameca, State of Jalisco; Tamascaltepec, State of Mexico; and on the coast of Acapulco, State of Guerrero.

[1] *Estadistica de la Republica.*

OBSIDIAN. — The most important article obtained from the earth, to the Aztec, was obsidian, a volcanic glass, called by them *Itztli*, a knife, or shining stone. Ancient mines of it are found to-day in many localities, particularly in the Cerro de las Navajas, near Pachuca, about which are scattered, it is said, hundreds of tons of fragments. Everywhere, over plain and valley, may be encountered knives, arrow and spear points, of obsidian, showing how numerous were the uses to which it was put during the time of the early people of Mexico.

PORPHYRY. — Chihuahua: Hidalgo, Jalisco, Puebla, Queretaro, and Zacatecas.

POTTER'S CLAY. — In Guanajuato; and Leon of the same State.

SALT DISTRICTS. — Lower California, Colima, Jalisco, Michoacan; San Luis, Potosi; Tequesquites, Tamaulipas; Valley of Mexico; Yucatan and Zacoalco.

TEQUESQUITE. — The surface exposed by the subsidence of Lake Tezcoco is sterile, treeless, almost herbless, but a few inches above that of the lake itself. Only a few plants appear upon it, belonging to the genera of *Gratiola*, *Atriplex*, *etc.;* such, in short, as thrive in a soil highly impregnated with saline substances.

"The landscape," says a very intelligent writer, "is that of a dreary desert, in places resembling the African Sahara; but in other places more like a northern moorland, with a hoar-frost, or a slight sprinkling of snow upon the ground; for here the *tequesquite* appears, coating the surface, sometimes of a snow-white color, sometimes with a yellowish tinge. It is the *natron*, a mixture of carbonate and sulphate of soda. The poor people dwelling around the lake collect and bring it to market; and it is employed in various ways, — for washing, for the fabrication of soap, and also in the cooking of one of the most common of Mexican dishes, the *frijoles*. They also manufacture a coarse kind of salt out of the earth thus impregnated, by a rough process known to them in the days of Montezuma. It seems to ooze out of the earth, forming an efflorescence on the surface, sometimes to the extent of a uniform stratum of an inch or so in thickness."

There is a very extensive deposit of this mineral salt in the State of Zacatecas, from which the miners of that section draw large quantities for use in smelting. This saline incrustation is formed on the surface of a shallow lake, which in a good year was estimated to yield 30,000 *fanegas*, or 360,000 *arrobas* (twenty-five pounds) yearly, and which was formerly worth one dollar the mule-load. The deposition depends upon the season, being best and thickest with an average rainfall. The only preparation it needs is to be gathered into conical, earth-covered hillocks, whence it is taken away by the purchasers.

COPPERAS. — In Tepeji, State of Mexico; Barranca de Toliman, in Hidalgo; Taretan and Huetamo, State of Michoacan.

COALS, AND MINERAL OILS. — Anthracite: In Tequisquiapan, State of Queretaro, and Tecomatlan, Puebla.

PIT COAL. — In Tecomatlan, State of Puebla.

PETROLEUM. — Puerto Angel, State of Oaxaca.

NAPHTHA. — In Guadalupe, Hidalgo, federal district.

STONE COAL. — In Chamacuero, State of Guanajuato.

For further details, see Resources of the various States, Industries, etc.

MINING AND MILLING.

1st, Can ore-reducing be profitably carried on in this Republic so as to obtain through it an *income?* If so, to what extent?

2d, Which is the part of the country most suitable for reducing silver and gold ores?

3d, Which of the known mining districts or zones offers for the future the best mining prospects, or best probabilities to the industry of reducing ores?

In answer to these questions, Señor Miguel Rul, a leading mining engineer of Guanajuato, replies in substance through the columns of "The Two Republics" (an American paper published in Mexico), as follows: —

(1) "The income will be variable, — in one year, perhaps, enormous, but in another small. It is advisable to erect reduction-works, especially for any one mine, but, where transportation is low, better to make one establishment suffice for a large group of mines.

"My answer is therefore divided in two parts: Firstly, the business of reducing ores does not offer probabilities enough of yielding a lasting or perpetual *income*, as is the case, for instance, with a farm or a house; but, secondly, said business, like all others not consisting only in landed property, may render in good epochs large profits, with which the capital laid out may be reimbursed."

(2) Guanajuato he considers the place at which reduction is best carried on.

(3) "As regards the third question, I believe, that, in our times, the most suitable places of all the ones actually worked, to establish such a kind of business, should be the environs of Pachuca and Mazapil (where I am not interested at all), those of Salvatierra (which would favor my Guanajuato business), and, towards the south, some places well fitted to reduce ores from the growing mining districts of Guerrero, Morelos, and Oaxaca. With respect to future centres, of mining districts scarcely worked, Chihuahua, Sonora, and Durango may be at once pointed out as the most preferable ones."

Señor Rul's description of the method of treating silver ores most used in Mexico is so valuable, that we herewith reproduce it. The "Patio System" originated in Mexico, and its use is peculiar to the country.

Granceo (*crushing*). — The first operation to which ores are submitted in order to reduce them consists in their being ground into small lumps in mills, called *Chilenos* (Chilians), substantially consisting of a large vertical iron or stone wheel pierced at its centre by a horizontal shaft, to which mules are attached to furnish motive-power. The ground upon which the wheel operates is a circle 0^m 49 wide, formed by iron pieces of the same material and thickness as the wheel-tire. Between this circle and the vertical shaft there is a sieve, in the shape of a truncate cone, into which lumps are shovelled, falling afterwards into a reservoir placed underneath the mill.

The crushed ores are taken to the hoppers, and thence to the grinding mills, or *arrastres*, where they are to be ground, or reduced to a very fine mud, — an operation upon which depends the quantity of silver and gold obtained. The locality where the *arrastres* are situated is called the *Galera*.

The *arrastre* is a circle 3^m 50 diameter, constructed with flags inserted into the ground, the interstices between them filled up with pebble, and then with fine sand

and water. At the centre a large and thicker stone is placed, called *cepo* (stock), intended to receive a vertical post, called *peon*, which is turned by means of a pole, to which two mules are set to move the apparatus, dragging a large stone, hung by means of chains to each one of the cross-arms. These stones are called *voladoras* (runners). Their length is a little shorter than the radius of the *arrastre*. They are cut in four-face prisms, and weigh about nine hundred weight, and are, as well as those forming the bottom of the *arrastre*, a hard quartzose porphyry.

In constant operation, the runners last about two months, and the bottom stones, about sixteen months. The quantity of ore ground in one *arrastre* of the given dimensions, *de marca* (standard), varies from eight to twelve hundred weight. During the twenty-four hours required to grind said quantity of ore, twenty or twenty-six hundred weight of water is required.

The quantity of water put into an *arrastre*, and the manner of feeding it, have a great influence on the success of the grinding as well as on the amount of gold to be found in the sediment; and much depends upon the *capitan de galera*, or foreman.

When the ore is reduced to fine mud, after twenty-four hours' work, — that is to say, when at the bottom of the *arrastre* no sand is found, — the *arrastre* is discharged, provided the mud be not too curdy, which is shown by the hand emerging from it as if it were japanned. Such being the case, more water is to be added, and the mud to be tried again, after having worked it a little while.

When the sand is perfectly fine, the upper part of the contents of the *arrastre* is taken out, and new ore put into it to complete its load.

To discharge the *arrastre*, the mud is taken from it to large reservoirs, called *lameros*, where the mud worked every day is put together until having the necessary quantity to form a cake. The *arrastres* must not be totally emptied, because, however perfect the grinding may be, a certain portion of badly ground ore always remains at the bottom, besides running the risk of throwing into the reservoir a part of the amalgam which always exists at the bottom of the *arrastre*.

Extraction of Gold. — On commencing the grinding in an *arrastre*, either by having provided it with a new bottom, or by its having been scraped, the interstices between the bottom flags are filled up with fine sand; then, in order to level the *arrastre*, a small quantity of poor ore is ground. If the *arrastre* be not a new one, but only scraped, the fine sand may be dispensed with, as the grinding of poor ore serves the purpose. The *arrastre* being levelled, a quantity of quicksilver amalgamated with some other metal, as silver, copper, zinc, etc., is thrown to the bottom, — an operation which is called *empellar*, — taking care to evenly spread the amalgam on the bottom. The quantity of amalgam to be put into an *arrastre* depends upon the amount of gold contained in the ore, as well as upon the quantity of ore to be ground within the time elapsing between the scraping operations, according to custom or convenience.

In general, when eight hundred weight of ore are daily ground in an *arrastre*, twelve pounds of amalgam are employed, in which there are about nine and a half pounds of quicksilver. The quantity of amalgam put at the beginning of the operation is insufficient to gather all the gold and a portion of the silver contained in the ore, as in the course of the operation the amalgam loses its gathering property. Hence it is necessary to gradually add small quantities of quicksilver; to ascertain which, trials of the *arrastre* are made two or three times a week, or oftener if the ores be very rich, in order to know their condition. The trials are made as follows:

The *arrastre* is divided by the runners in four equal parts: when a trial is to be made, the runners are placed in a given position, which is to be changed at the moment of effecting the trial. One of the four compartments of the *arrastre* is emptied: and, when the bottom is exposed to view, small quantities of mud are taken from the interstices, forming with them balls, which are placed in an orderly manner in a box with compartments, numbered as the compartments of the *arrastre*, in order to avoid confusion.

The balls are washed; and from the appearance of the sediment the condition of the mud is ascertained. If the sediment appear compact, or divided in large pieces, it proves that the mud is well saturated with quicksilver, and the operation can go on; but should the mud be too much pulverized, almost powdered, then it is too dry, and wants more quicksilver, until it becomes as fluid as at the beginning of the operation. In the former case, the pressure of the mud with the finger forms a white and shining surface: in the latter instance, it forms a dark and opaque one. An accurate account of the quantity of quicksilver put into each *arrastre* is kept, so as to know at any moment the total amount employed in the *galera:* hence the approximate quantity of silver in all the *arrastres*. From ores without pure silver, ten or twelve per cent of the alloy contained in the whole grinding is gathered; but the best way to ascertain it is to assay the amalgam, taking small quantities from each trial in order to estimate the condition of the *galera*. Said assays show very accurately the amount of gold and silver contained in all the *arrastres*.

When the amalgam is considered rich enough, or when it is thought that its quantity at the bottom of the *arrastre* is too large (which would be detrimental to the grinding operation), the scraping operation is commenced. This consists in taking out the flags forming the bottom of the *arrastre*, extracting with hooks from the interstices all the earth which may contain amalgam. The operation ends, when, assaying the earth taken from the interstices, no amalgam is found in it. It would be no inconvenience, however, to leave a small quantity of amalgam in the earth, as it will be picked out when putting new bottom to the *arrastre*. The earth is washed, adding to it a suitable amount of quicksilver, and putting it into large trays, where the amalgam settles, containing about eighteen to twenty-two pounds of mixed silver for a hundred pounds of quicksilver used in the *galeras*.

Patio (*yard*). — The *patio* is a large yard paved with flags very well adjusted to each other, so as to prevent as much as possible the escaping of the quicksilver, and with declivity enough to allow the running of the rain-water without carrying the mud of the cakes which are to be placed over the flags. The cakes are formed with the ground ore which is to be worked upon. Whenever there is in the *lamero* (reservoir) mud enough to form a cake (about a hundred *montones*, though they are sometimes larger), the mud is thrown in the yard, taking care of daily taking out from the *lamero* any excess of water that may be there. The mud is received into another provisional reservoir, constructed over the yard in the space to be occupied by the cake, which reservoir is called *cajete;* and its size is such as to allow the mud to form a cake 0^{m} 25 to 0^{m} 30 thick. The cake is allowed to settle itself, being perforated now and then, to make the water on its surface gradually flow out. This operation, together with the spontaneous evaporation, prepares the cake for salting within four or six days. Before salting the mud, it must be assayed, taking from different points in the reservoir small quantities of mud by means of a wooden

rod, which is pushed down to the bottom in order to have mud from the bottom, the centre, and the superficies of the cake. The mud thus collected is put together, well mixed up, and ready to effect the assay. The assay gives to the cake a richness lower than the one obtained when assaying the ground ore; which difference is caused both by the silver remaining in the *arrastre* and by the wear of the latter, which, increasing the bulk of the cake, abates its relative richness. The quantity of gold obtained in this assay will give an exact idea of the amount to be collected from the *arrastres*, consequently, of the degree of perfection attained in such an interesting operation. It is to be borne in mind that the assay of the cake, which serves as a basis to estimate the ore, as well as the results of the reduction, is made both by the miner who sells the ore and by the reducer who purchases it. Hence the results of two different assays show the true value of the ore, with a proper allowance for reduction, provided the operation be accurate. It is also to be borne in mind that it is untrue, as some misinformed foreign writers have asserted, that our assays show a richness thirty per cent lower than the right one; for, since the exportation of ores is allowed, many a quantity of them has been sold to Europe, the assays made there having given a result very similar to ours.

The quantity of salt to be put in a cake varies according to the richness of the ore, and it is impossible to state a constant proportion. We have only noticed that the fluctuation takes place in the same direction; that is to say, the richer the mud is, the larger the quantity of salt required; so that, for instance, when the quantity of silver in a *monton* is from four to six marks, 125 pounds of salt are required, which is equivalent to 3.90 per cent of the mud. If the richness be from six to ten marks, 150 pounds of salt will be added, say 4.68 per cent. On adding the salts to the cake, it must be evenly distributed over the surface in order that its action may be uniform on the whole mass.

Chlorure of sodium constitutes the active principle of salt, and is one of the agents indispensable for amalgamation. The common salt used in the reduction of ores contains other substances, such as chlorures of calcium and magnesium, sulphates of the same bases and of soda, carbonates of soda and lime, some earth, and other accidental substances. All those impurities being very variable, even in salts coming from the same mine, and having great influence upon the result and duration of ore-reduction, the salt must be assayed previous to being added to the cake in order to ascertain the quantity of chlorure of sodium it contains. Besides, it must be borne in mind that to employ poor salt, or to use an insufficient quantity of it, will prove very detrimental.

The cake being salted, with the above precautions, the first *repaso* is practised. *Repaso* is the name people give to the operation of stirring the mud mixed with the substances required for reducing ores, and is performed by mules, which are caused to continually walk over the cake during eight hours. Twenty-four mules generally are employed for a cake containing a hundred *montones* (about 147 net tons).

On the day following the salting of the cake; the *magistral* and quicksilver are added, an operation called *incorporo* (incorporation). Both the above substances are to be perfectly spread over the surface of the cake; which operation offers no difficulty at all, as the *magistral* is powdered, and the quicksilver is strained through a linen, pressed by hand, and takes the form of small balls, coming out like drops of rain. After having incorporated the cake, another stirring is immediately effected, repeating said operation every other day, from six in the morning to two in the after-

noon. On the very day the stirring is made, the cake is overturned, so as to have the whole mass perfectly mixed up. This operation is made with shovels handled by men; its purpose being to cause the mud to be equally affected by the mules, the combination of the substances added, and the action of the sun.

The quantity of *magistral* used depends upon several circumstances, the main one being the amount of sulphate of copper it contains, as it is a well-known fact that said ingredient is a double sulphur of copper and iron, which by calcination assumes the condition of sulphate of the same metals, but mixed with variable quantities of metallic oxides. The kind of the ore to be reduced, and the atmospherical temperature, are also to be taken into consideration when stating the proportion. With regard to the first influence, it is obvious, that, the richer in sulphate of copper the *magistral* is, the smaller the quantity required. As a general rule, we may say that pure crystallized sulphate of copper is added at the rate of seven or eight pounds to a *monton* of ore having from five to eight marks of silver. As regards the second influence, — that is to say, the kind of ore to be reduced, — nothing but practice can ascertain it, and suggest the quantity of *magistral* to be used. Regarding the third influence, — viz., atmospherical temperature, — we can only state, that, under similar circumstances, less *magistral* is required in winter than in summer time. Quicksilver is in general put at the rate of four pounds to each mark of silver in the cake, as per the assay made before salting it, better still, as per the result of the assay made with the *granza*, deducting the metal which has remained in the *arrastres*. The quicksilver is put in smaller quantity than the one above mentioned; but, in the course of the reduction, small portions are gradually fed, when the assay hereafter alluded to shows that the amalgamation wants quicksilver.

After the cake has been incorporated and stirred, another experiment is made, called *tentadura*, in order to ascertain the effects the ingredients are producing. Said assay is practised every day, in the morning (also at noon, when the cake has been stirred), taking about half a pound of mud from different parts of the cake, — now from the superficies, now from the bottom, or from both, according to the purpose in view. The mud is dissolved in water contained in a dark-bottomed vessel, which is a small tray made of a gourd called *guaje;* then the mud is washed (taking care not to rub it either against the vessel or between the fingers) by a rotary movement, the water carrying away the earth and other useless parts; then, putting in clean water, the vessel is lightly shaken, so that the different components of the remaining sediment may take their respective places, according to their different densities, in order to be inspected; finally, a few drops of water are skilfully sprinkled with the fingers into the gourd, a little over the place occupied by the ore.

The characteristics of the ore are offal or refuse (called *lis de azogue*), limature, metallic sediment or fine powder, and a globule formed by the detached quicksilver. Offal, so called because it is the somewhat modified and greatly subdivided quicksilver, forms a white and tarnished stripe on the upper part of the ore, — a reason why it is also called *cabeza* (head), — and on being rubbed between the fingers forms small globules of quicksilver. Limature is a white and shining stripe, which on being rubbed with the thumb becomes a thin sheet of amalgam, called *pasilla*. The metallic sediment, also called body of the hard cake, is composed of the unreduced ore and some of the substances accompanying it.

The quicksilver globule at the bottom gives, when strongly compressed with the thumb, a certain amount of amalgam, which increases as the reduction advances.

Sometimes, when the reduction is near completion, the quicksilver does not form globules, but is diffused.

When the limature has the same color as the amalgam, and gives forth a small amount of silver; when the offal forms a narrow and opaque stripe; finally, when the globule is clear and shining, with little grains on its surface, and, strongly compressed with the finger, gives out an amalgam that makes in the gourd a white mark, — then it may be said that the reduction is going on the right way. If the offal be ash-colored, and the limature rather opaque and soft, thus showing its being overloaded with quicksilver; if, besides, the color of the globule be dark-gray, and the amalgam it contains, on being separated by pressure, leaves on the gourd a track very prominently white-colored, producing something like whitish smoke, — then it is said that the cake is *hot*. The degree of heating is estimated by the evidence of the aforesaid features. When the *lis* and limature are very scarce, and the latter too juicy (the globule being elongated and depressed, yellowish or blackish colored), and the amalgam rendered by it leaves no track on scraping the gourd, then it is said that the cake is *cold*.

In the trial made after the stirring following the incorporation, if the ore be not very rich, a narrow offal stripe and a small quantity of limature are all that appear at the top: hence, at the beginning of the reduction, if the ore be poor and rebellious, there is rather no other guidance than the quicksilver globules.

When the cake becomes hot during the first reduction days, the evil may be prevented by adding either a certain quantity of fresh mud from the reservoir, or some precipitate of copper; but, should the heating be noticed at the end of the operation, precipitate of copper, ashes, and salt should be put in.

The action of cold is overborne by throwing into the cake a small quantity of *magistral*, or sulphate of copper, in order to increase its strength.

When the reduction process goes on rightly, it may be noticed, that, on the twentieth day, the limature and metallic sediment the silver contains begin to decrease, while the globule abounds with amalgam; but those effects never appear before the thirtieth day when the ore is rebellious.

On the cake being ready, a rapid increase of quicksilver *lis* is noticed, which, rubbed with the finger, becomes quicksilver globules, the limature disappearing at the same time. But, although those features are very prominent, they may in many an instance be deceitful. Such is especially the case when quicksilver is in excess, and salt scarce, either for not having put at first the necessary quantity of it, or for it having been consumed or carried out by the rain-water. In order to avoid perplexity, the amalgam is assayed, thus ascertaining the amount of silver extracted; and this indication, in conjunction with the other characteristics previously found, gives the certainty that no larger amount of silver is to be extracted.

The above assays serve not only to show the yielding of the cake, but also the daily progress of the reduction process. It is a curious fact to be observed, that the results of the assays go on in a parallel line, so to say, with the indications of the amalgam, as hitherto explained; so that those two means complete each other.

Washing. — The reduction being finished at the yard, the cake is washed in order to separate the mass of crude metal from the muddy and terreous part. The washing-place is formed by three or four large wooden or stone and mortar vats communicating with each other through large square holes called *bilitrones*. The first and last of said vats have also outside openings, — the first one to receive the

mud, and the last one to effect the discharging. Inside those vats is a four-arm churn-staff, which by its revolutions dissolves the mud, allowing the latter to remain at the surface of the water all the time necessary for the silver and quicksilver to settle themselves at the bottom. Before commencing to wash the cake, it must be softened by water in as large a quantity as to have the mud thoroughly fluid. Then the mud is carried through a large channel made on the very floor of the *arrastre*, dragging it along by means of a frame of laths pulled by a mule, until the mud is thrown into the first vat, called *cargadora*. When the filling operation is over, with the vats half-full with water, the churn is caused to rapidly revolve during half an hour, — an operation called *batir* (to beat); then the vats are filled up with water, the churn is slowly revolved (*asentar*, to settle) during an hour and a half, at least, in order to be sure of the operation; then the discharging follows. But a trial is made before, to see whether the settling has been perfectly made, introducing into the last vat but one a small vessel hermetically closed, which, when level with the vat-hole, is opened by means of a peculiar device, its contents being received into a gourd, there to be assayed. If the settling has been perfect, a stripe of quicksilver *lis* or offal appears, which on being rubbed does not form any globule, also some pyrites and terreous parts; but, should the stripe give forth any quicksilver globule, then the settling has been imperfect, and must be continued until the above-mentioned characteristics are obtained. Then the discharging begins, unstopping the last vat, called *piojo*, in order to have it emptied down to the opening level. Another assay is made, for security's sake, so that any defect noticed may be corrected at once.

The vats are filled up again, repeating all the aforesaid operations, until the whole of the cake is washed. Then comes the rinsing operation (*en juagar*), pouring fresh water into the vats, beating and settling again, so as to clean out all the mud.

As the quantity of mud put in each filling is proportional to the capacity of the vats, the washing takes more or less time. Vats 3^m 35 diameter by 1^m 67 deep, generally contain three or four *montones*. As each partial washing takes about two hours, to wash a cake of one hundred *montones* requires three or four days. When the respective situations of the yard and the washing-place do not allow the mud to be dragged as aforesaid, it is carried by men in large troughs.

Apurar (to purify). — This is the next operation, consisting in taking from the vats the settled metal, the larger part of which is found in the first vat, mixed up with *cabecilla*, that is to say, the ore, which, not being reduced to mud, appears like sand. This sand is put into large and deep troughs, which are kept over the water in a large basin, and undergo an oscillatory and revolving movement, so that the metal may settle at the bottom, adding to that end a quantity of quicksilver, which leads down the smaller particles.

As the metal so gotten contains, however, earth and other impurities, the cleansing operation (*limpia*) comes next, to have the metal completely purified. The mass of crude metal is taken to the *azogueria*, where it is thrown into a circular stone basin well covered with bitumen: more quicksilver is added to it, stirring it through, so that the impurities remain at the surface. If some hard grains be found, they are taken out and ground, incorporating them afterwards with the mass in the basin.

When the mass of crude metal is thoroughly cleaned, it must be dried, so as to

have it in a mass condition. To obtain such an effect, the crude metal is thrown into a conical bag (*manga*), hung to a beam by means of strong chains. The upper part of said bag is made of hide, and of wool the lower one; so that the quicksilver may pass through its interstices. The very weight of the mass compressed into the bag causes the quicksilver to flow out; but, in order to quicken the operation, the bag is beaten with wooden mallets, until no quicksilver comes out.

The mass is then thrown into iron moulds, to form sectors of a cylinder, called *marquetas o bollos* (cakes or bars), afterward proceeding to separate by fire the quicksilver they may contain.

Roasting. — The roasting is done in an apparatus, called *capellina*, consisting of a circular cast-iron or copper vessel called *bacin*, and inserted into the floor, which is formed with fire-proof stones very well adjusted to each other and to the *bacin*. The superficies formed by those stones, which is called *planta*, has also a circular shape; the stones being cut in such a manner as to leave around the *bacin* a canal, where water is constantly running during the roasting. The *bacin* has at its bottom an opening, through which the quicksilver separated by the fire-action escapes into a cavity in a sewer connected to a reservoir, called *desazogadera*, where the condensed quicksilver resulting from the roasting operation is collected.

An iron piece, called *candelero*, is placed into the *bacin;* said *candelero* consisting of a ring, a disk with a hole in its centre, both parts secured by four iron rods. The *candelero* is situated so that the disk overtops the floor. Over said disk another one is placed, likewise bored in its centre, and called *platillo*. On the latter are placed the metal bars, alternating their edges, and forming a hollow centred cylinder called *piña*, which is covered by a cast-iron, brass, or copper bell, carefully packing with moistened ashes the joints between the bell and the *bacin*. Then the bell is wrapped up with long bricks, leaving a hollow space to be filled with coal, so that the fire may come in contact with the bell. Then the fire is kindled, and kept burning during ten or twelve hours. After allowing the bell to cool itself, the cover is taken away, and the metal bars are found unmelted, but free from quicksilver, provided the operation be successful. In order to be sure of it, any moist body, for instance, a piece of iron or wood, is approached to the bars. Should the roasting be imperfect, some quicksilver vapors will condense on the moist body, showing that the operation ought to go on.

Extraction of Polvillos. — Both on scraping the *arrastres* and on washing the amalgam, a certain amount of fine sand is obtained, containing variable quantities of silver, especially argentine pyrites, a great deal richer in gold than the ground ore. The separation of those metallic parts is performed by means of certain concentrating apparatus, called *planillas*, variable in their form; the more usual ones being boxes with declivious bottoms, about two metres long by one metre wide. On the upper part of said boxes the ore to be concentrated is placed; throwing to it some water, which drags down the terreous substances, leaving the powder on the upper part, although mixed with different substances. To get their complete purification, it is necessary to again and again wash the residue.

A certain quantity of the *pella* — escaped from the washing-vats when discharging them, or from the troughs when purifying the cake — is likewise obtained. The concentrated portions are called *polvillos* (fine powder), which are ground again in the *arrastre*, and calculated to be used instead of *magistral;* or are first calcinated, and afterwards ground, in order to extract from them a part of the gold and silver they

corrupt. As much as two per cent of the ore richness is generally gotten out of the *virgin*, although said rate may vary according to the kind of ore.

Results obtained from the Reduction. — The amount of silver extracted from the cake, added to the one settled on the *arrastres* bottom, is never equivalent to the amount indicated by the assays of the ground ore. There is always a loss, amounting in normal circumstances to five or eight per cent; it being also noticed, that, for each silver mark obtained, ten or twelve pounds of quicksilver are wasted.

Of the amount of gold indicated by the assay of the ground ore, seventy-five per cent is gotten when gold is pure, and no more than forty per cent, even less, when in pyrites.

Approximate cost of reducing thirty-two hundred weight of ore (one monton), the price of Indian corn being $1.37 a fanega, and 15½ cents the price of twenty-five pounds of straw: —

Crushing.

Food for 8 mules, per week	$10 00	
4 laborers	13 50	
1 driver	5 00	
Wear and tear	4 00	
Wages on 6 nights' work	19 00	
	$51 50	
which, divided by 56.25 *montones* generally crushed in one week, with 24 hours as daily work, gives, as cost per one *monton*		$0 92

Grinding.

Food for 130 mules, at 18¾ cents per day, 7 days	$170 62½	
1 foreman	13 00	
1 second foreman	7 00	
3 men for the hopper, at $3.00	9 00	
5 men for the *arrastres*, at $4.00	20 00	
3 watchmen, at $4.00	12 00	
2 yard-keepers, at $3.00	6 00	
1 man at the well	3 00	
170 bottom flags	10 62½	
13 runner stones, at $2.50	32 50	
	$283 75	
which, divided by 56.25 *montones*, gives per each one of them		5 04

Yard.

25 mules to stir 100 *montones*:		
Mules	$4 68¾	
7 laborers	3 50	
Per *monton*, 8 cents, stirring 14 times	$1 12	
125 @ salt	2 50	
13 lbs. sulphate, at $12 per hundred weight	1 56	
1 foreman	$5 00	
2 watchmen	10 00	
	$15 00	
Say to 1 *monton*	0 28	$5 46

Washing, Purifying, and Roasting.

10 mules, 4 days	$7 50	
Sundry expenses	38 00	
8 hundred weight coal, at 75 cents,	6 00	
	$51 50	
Say to a *monton*		0 51

General Expenses.

Wages	$65 00	
Rent	25 00	
Wear and tear and sundries	25 00	
	$115 00	
To 1 *monton*		2 22
Cost of reducing 1 *monton*		$14 15

REDUCTION OF ORES.

The *patio* process, invented by the miner of Pachuca, says Humboldt, "is one of those chemical operations which for centuries have been practised with a certain degree of success, notwithstanding the persons who extract silver from ores by means of mercury have not the smallest acquaintance either with the nature of the substances employed, or the particular mode of their action. The *azogueros* speak

of a mass of ores as of an organized body, of which they augment or diminish the natural heat. Like physicians, who in ages of barbarism divided all ailments and all remedies into two classes, hot and cold, the *azogueros* see nothing in ores but substances which must be heated by sulphates if they are too cold, or cooled by alkalies if too warm."

SILVER: SYSTEM OF "BENEFICIATING" EMPLOYED (1880).

States.	Patio. Kilograms.	Tonel. Kilograms.	Lixiviacion. Kilograms.	Fuego. Kilograms.	Total Kilograms Pure Silver.
Zacatecas	109,076 412	– –	– –	8,341 449	117,417 861
Guanajuato	104,310 530	– –	– –	1,001 091	105,311 621
Hidalgo	46,390 335	20,840 170	– –	28,271 478	95,501 983
San Luis Potosi	30,322 306	– –	– –	37,516 555	67,838 861
Jalisco	34,222 216	– –	– –	– –	34,222 216
Sonora	28 974	– –	14,207 727	18,680 348	32,917 049
Durango	15,800 123	– –	– –	12,734 574	28,534 697
Chihuahua	8,619 534	– –	1,900 044	17,406 380	27,925 958
Sinaloa	5,551 168	– –	– –	6,153 847	11,705 015
Mexico	3,147 353	– –	– –	5,762 262	8,909 615
Michoacan	2,693 645	– –	– –	3,382 358	6,076 003
Oaxaca	121 721	3,663 673	– –	24 850	3,810 244
Guerrero	– –	– –	– –	2,005 612	2,005 612
Puebla	– –	– –	– –	712 991	712 991
Queretaro	– –	– –	– –	230 872	230 872
Amount	360,284 317	24,503 843	16,107 771	142,224 667	543,120 598

RÉSUMÉ.

	Kilograms.
By patio	360,284 317
By tonel	24,503 843
By lixiviacion	16,107 771
By fire	142,224 667

Mining Nomenclature. — The following translations will be found to contain most of the terms in general use about mines in Mexico. Assessments, exhibiciones; assay, ensaye; a claim, pertenencia; blast, cohete; boiler, caldera; crosscut, crucero; croppings, creston; drain, desaguar; drill-hole, barreno; dividends, dividendos; dump pile, terreros; drill, taladro; dip of ledge, echada; engine, máquina de vapor; extension, próroga; front wall, respaldo alto; foot wall, respaldo bajo; gold, oro; hand-drill, barrena; hoisting whim, malacate; iron, hierro; locating, denuncio; mill and works, hacienda; mine corners, mojoneras; mine, mina; ore, metal; powder, pólvora; pump, bomba; quicksilver, azogue; shaft, tiro; silver, plata; slag, escorias; shareholders, accionistas; steam drill, perforador; tunnel, socavon; ton, tonelada; vein, veta; arroba, 25 pounds; quintal, 100 pounds; carga, 300 pounds; monton, 3,000 pounds; marco, about $8.85; metro, 39.37 inches; vara, 2 feet 9 inches.

Laborers in an Ordinary Mine, and their Average Wages (weekly). — 1 administrador, $25.00; 1 rayador, $6.00; 2 mineros, at $6.00; 1 capitan de patio, $5.00; 1 bartolinero, $4.00; 1 portero, $3.50; 2 fierreros, at $3.50; 3 veladores, at $3.50; 12 destajeros (by the job), at $30.00.

Day Laborers. — Barrateros rayados, 62 cents; peones, 50 cents; manteros, 75 cents; paleros, $1.00; cajoneros, 87 cents; contras, 50 cents; arreadores, 37 cents; quebradores, 37 cents; carretoneros, 40 cents; corraleros, 31 cents; garraferos, 31 cents.

COINAGE OF THE MEXICAN MINTS.

The mint of Mexico was established in 1535, fourteen years after the capture of the Aztec city, under the first viceroy sent out from Spain.

The most careful estimates, in 1876, placed the total coinage at nearly $3,000,000,000: —

	Silver.	Gold.
In the colonial period (1537 to 1821)	$2,082,260,657	$68,778,411
Since the independence (1822 to 1875)	787,055,080	47,327,383
Coinage of copper	5,272,855	
And we have up to 1875, in copper, silver, and gold		$2,990,694,386

The average annual coinage was at that time (1876) estimated at $20,500,000.

For ten years, this would be $205,000,000; making total coinage to 1885, $3,195,694,386.

That this estimate is not exaggerated, we are convinced by the actual returns for the economic year 1879, taken from the government statistics, and presumably accurate: —

COINAGE FOR THE YEAR ENDING JUNE 30, 1879.

Mints.	Gold.	Silver.	Copper.	Total.
Mexico	$304,500 00	$5,116,000 00	$14,800 00	$5,435,300 00
Zacatecas	50,111 00	4,597,939 50	– –	4,648,050 50
Guanajuato	212,158 00	3,740,403 75	– –	3,952,561 75
San Luis Potosi	– –	2,519,110 00	– –	2,519,110 00
Guadalajara	3,830 00	1,413,161 00	1,500 00	1,418,491 00
Chihuahua	– –	806,025 00	– –	806,025 00
Culiacan	49,230 00	891,951 00	– –	941,181 00
Durango	23,935 00	854,882 50	– –	878,817 50
Alamos	13,700 00	756,598 15	– –	770,298 15
Hermosillo	1,360 00	555,650 00	– –	557,010 00
Oaxaca	3,700 00	153,610 00	– –	157,310 00
	$662,524 00	$21,405,330 90	$16,300 00	$22,084,154 90

RÉSUMÉ.

Gold	$662,524 00	
Silver	21,405,330 90	
		$22,067,854 90
Copper cents (*centavos*)		16,300 00
Total coinage in the year (economic) of 1879		$22,084,154 90

COINAGE.

Old Coinage.

Onza de oro (gold ounce)	16 dollars	=	£3.04
Media onza ó doble pistola	8 "	=	1.12
Pistola (one-fourth *onza*)	4 "	=	0.16
Escudo de oro (gold *escudo*),	2 "	=	0.08
Escudito de oro	1 "	=	0.04
Peso fuerte de plata (silver dollar)	1 "	=	0.04
Toston (silver half of a dollar),	4 reales	=	0.02
Peseta (silver quarter of a dollar)	2 "	=	0.01
Real (silver eighth of a dollar),	12½ cents	=	6¼d.
Medio real (silver sixteenth of a dollar)	6½ "		

Old Coinage — Continued.

Cuartilla (silver thirty-second of a dollar), 3 cents.
Tlaco (copper), half of a *cuartilla*.

New Coinage.

Gold 20 *pesos*	20 dollars	=	£4.0
Piece of 10 *pesos*	10 "	=	2.0
Piece of 5 *pesos*	5 "	=	1.0
Silver 1 (10 *dineros* 20 *granos*),	1 "	=	0.4
A half, 50 *centavos*	50 cents	=	0.2
A quarter, 25 *centavos*	25 "	=	0.1
A tenth, 10	10 "		
A twentieth, 5	5 "	=	2½d.
Copper 1	1 "	=	½d.

Nickel coins, in 1, 2, 3, and 5 cent denominations, were issued in 1883, but did not meet with favor from the people, who preferred silver.

WEIGHTS AND MEASURES.

Weights.

1 *onza*	(8 *ochavos*)	= 1	ounce.
1 *marco*	(8 *onzas*)	= 0½	pound.
1 *libra*	(2 *marcos*)	= 1	pound.
1 *arroba*	(25 *libras*)	= 25	pounds.
1 *quintal*	(4 *arrobas*)	= 100	pounds.
1 *carga*	(3 *quintals*)	= 300	pounds.
1 *fanega*	(140 pounds)	= 2	bushels, nearly.
1 *alumer*	(*almuerza*)	= 0¹/₁₂	of a *fanega*.
1 *frasco*		= 5	pints, nearly.

Measures.

1 foot measures 0.928 foot English.
1 *vara* (3 feet Mexican) equals 2.784 feet English, or 2 feet 9.3141 inches English.
1 league (26.63 to 1 meridian) equals 5,000 *varas*, or 2.636 miles English.

New Measures.

Kilómetro (kilometre) equals 1,000 metres or 1,086 yards.
Metro (metre) equals 100 centimetres, or 1 yard 3½ inches.
Centímetro (centimetre) equals 2½ hundredths to an inch.

The metric system is legal in Mexico, and coming into general use, as it should be in the United States also, insuring uniformity in weights and measures throughout the continent.

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Acordada, famous prison in city of Mexico. At various times the prisoners confined here have risen in revolt, or have been let loose upon the peaceful population of the city, as in 1828; and in 1847 again, when they were liberated at the entrance of the American army, inflicting more mischief and causing more terror and bloodshed than the invaders themselves.
Adobe (ah-do'-bay), sun-baked bricks, of which walls and huts are made in Mexico; also a name of contempt; Moorish-Spanish word; Arabic, *al-toob*; ancient Egyptian, *Adoub*.
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Alamo, Spanish for Poplar, whence *alameda*; famous fort at San Antonio, Texas.
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Aloes, sometimes, though improperly, applied to the agave, *A. Americana* or *Mexicana*. The agave belongs to the order Amaryllidaceæ, while the true aloe is of the order Liliaceæ. Both are found in Mexico.
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Amolli, or soap-plant, *Sapindus* (?), the fruit or seed of a plant belonging probably to the *Sapindaceæ*, or Soap-berry family, an Indian substitute for soap, much used by the ancient Mexicans, and also at the present day by the poorer classes. In Mexico, the fruit of the *Copalxocotl*.
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